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(12) **United States Patent**  
**Summers et al.**

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(54) **ARROW REST MOUNTING SYSTEM  
ENABLING SLIDE-BASED POSITION  
ADJUSTMENT**

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patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **17/463,285**

(22) Filed: **Aug. 31, 2021**

(65) **Prior Publication Data**

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**Related U.S. Application Data**

(63) Continuation of application No. 16/729,626, filed on  
Dec. 30, 2019, now Pat. No. 11,105,581, which is a  
continuation of application No. 16/143,944, filed on  
Sep. 27, 2018, now Pat. No. 10,539,390, which is a  
continuation of application No. 15/446,696, filed on  
Mar. 1, 2017, now Pat. No. 10,088,264.

(60) Provisional application No. 62/301,819, filed on Mar.  
1, 2016.

(51) **Int. Cl.**  
**F41B 5/22** (2006.01)  
**F41B 5/14** (2006.01)

(52) **U.S. Cl.**  
CPC ..... **F41B 5/143** (2013.01)

(58) **Field of Classification Search**  
CPC ..... F41B 5/143  
See application file for complete search history.

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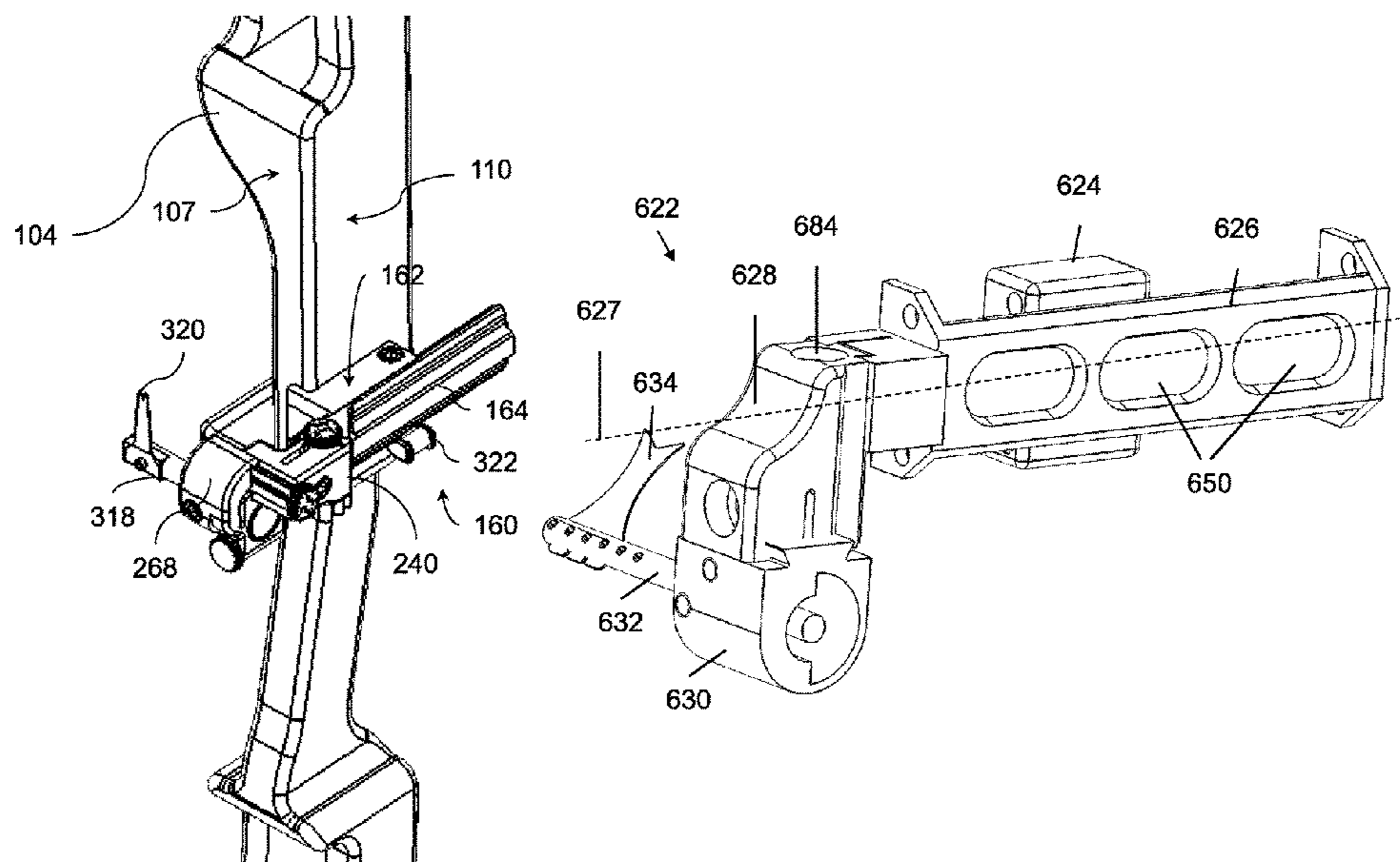
*Primary Examiner* — John A Ricci

(74) *Attorney, Agent, or Firm* — Barclay Damon LLP

(57) **ABSTRACT**

An arrow rest mounting system is disclosed. The system, in  
an embodiment, comprises a main body configured to be  
coupled to an archery bow and an arm extending along an  
arm axis and configured to be supported by the main body.  
The arm comprises one or more main body engagement  
surfaces configured to engage the main body to at least  
partially surround the arm on the main body. The arm further  
comprises an arrow rest support configured to support an  
arrow rest. The arm is configured to be adjustably slid  
relative to the main body along the arm axis.

**20 Claims, 49 Drawing Sheets**



(56)

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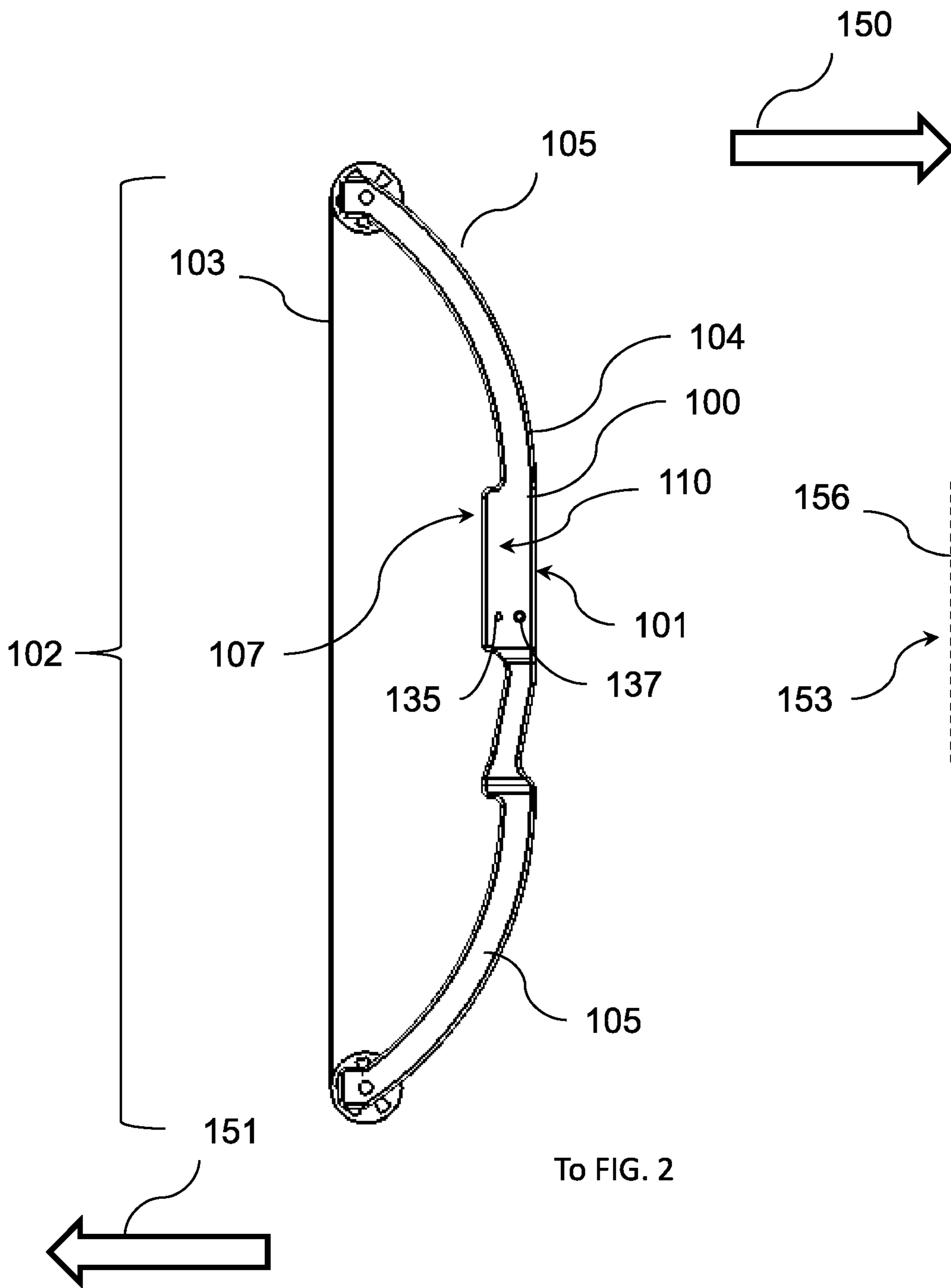


FIG. 1

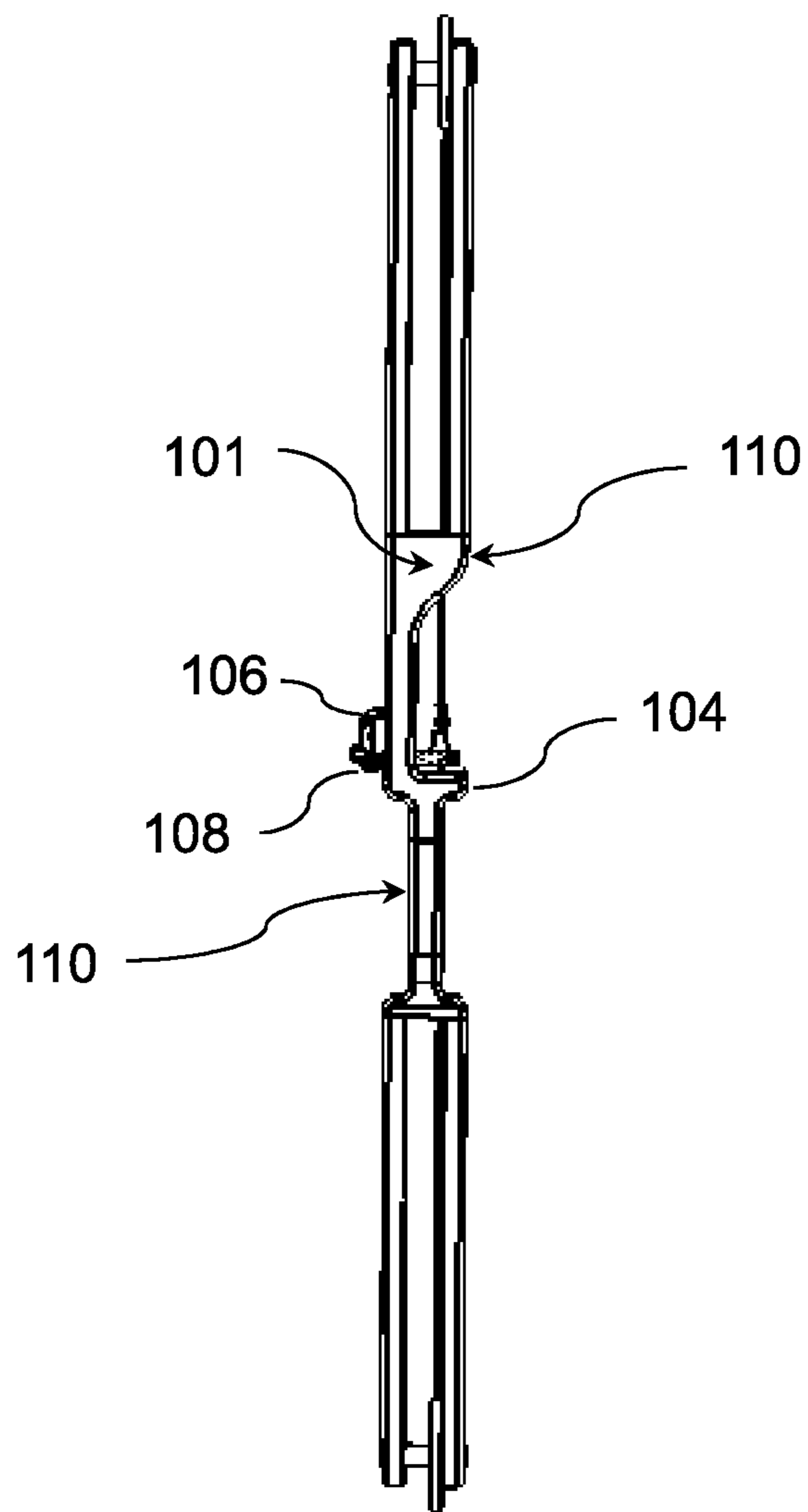


FIG. 2

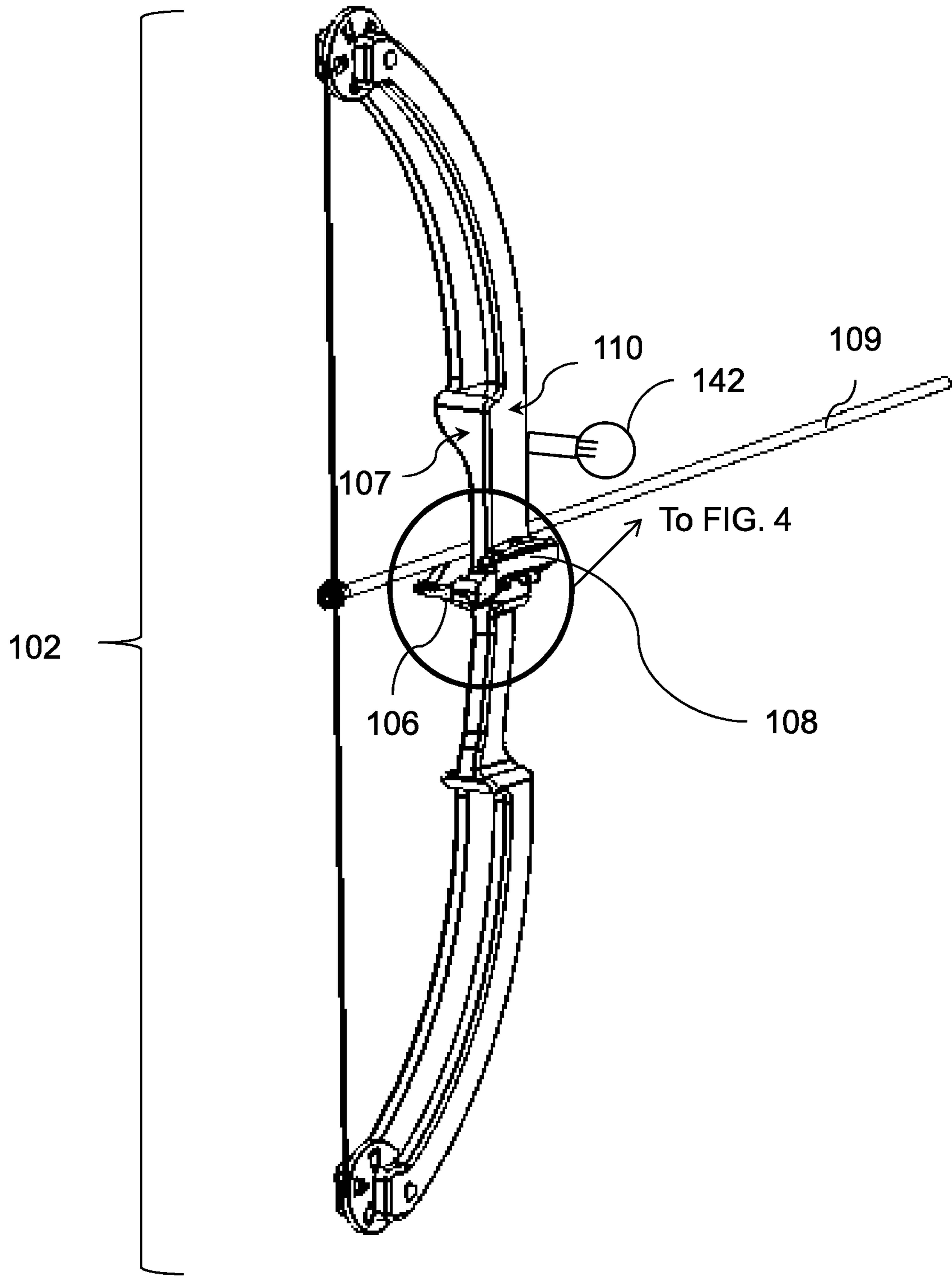


FIG. 3

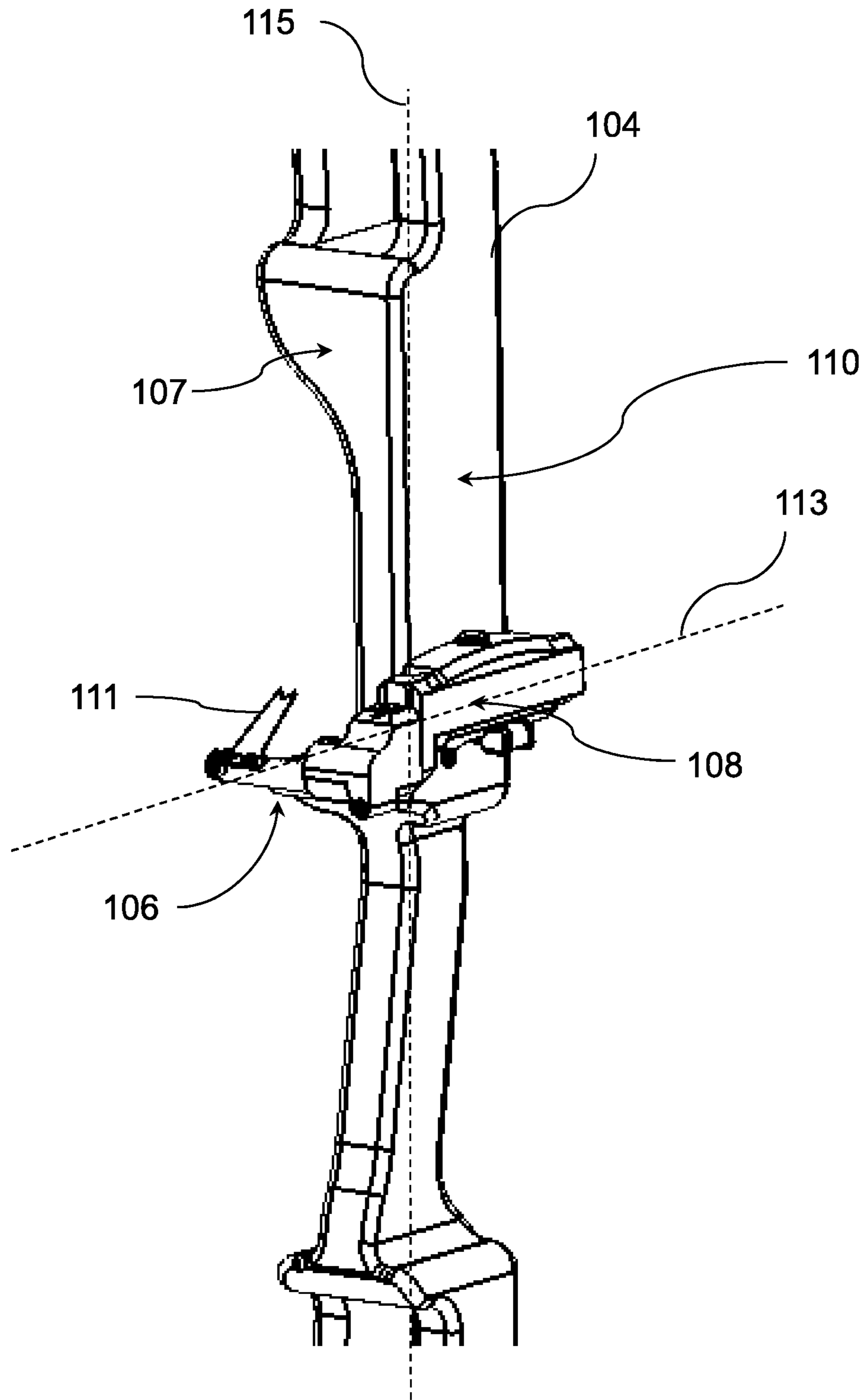


FIG. 4

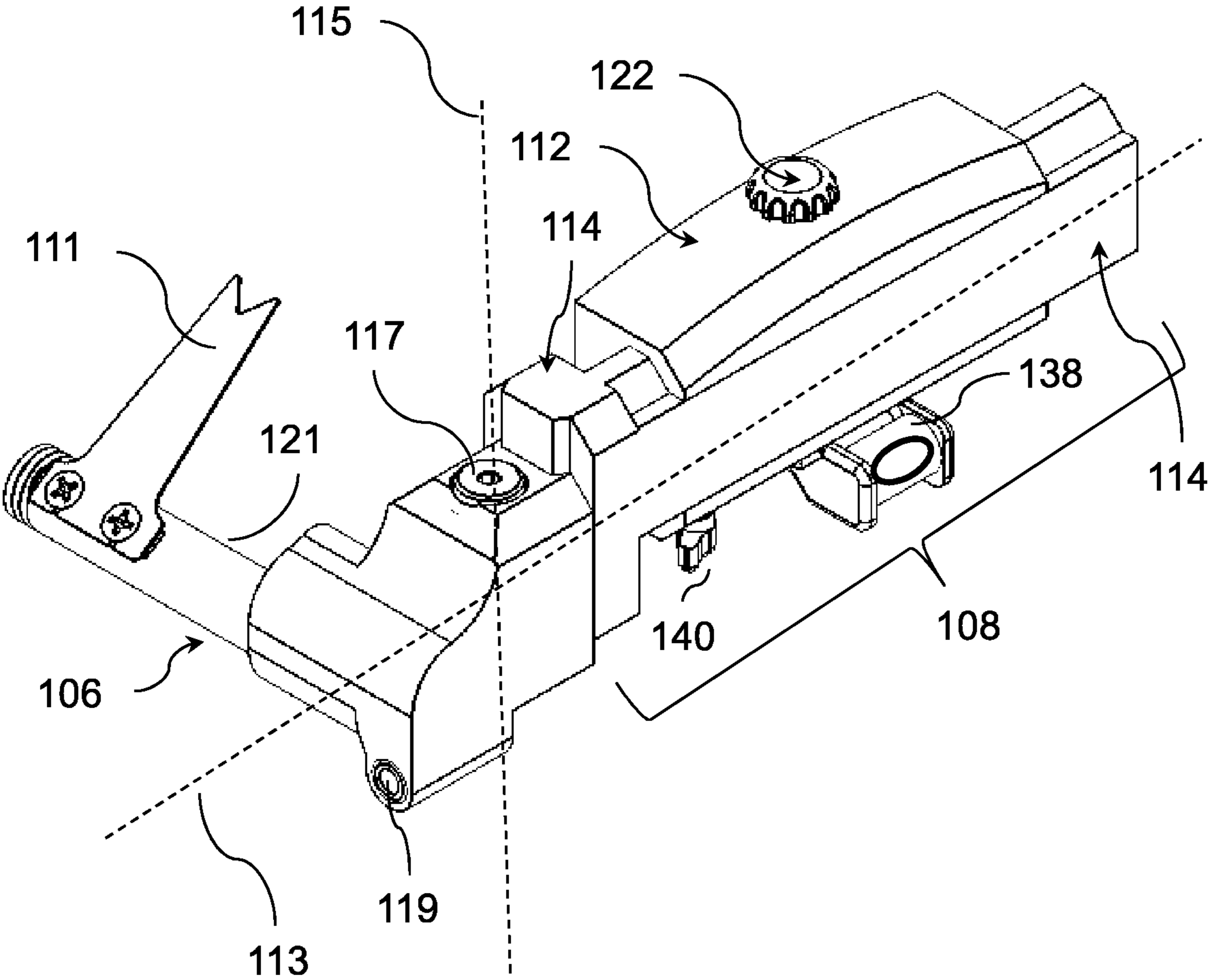


FIG. 5

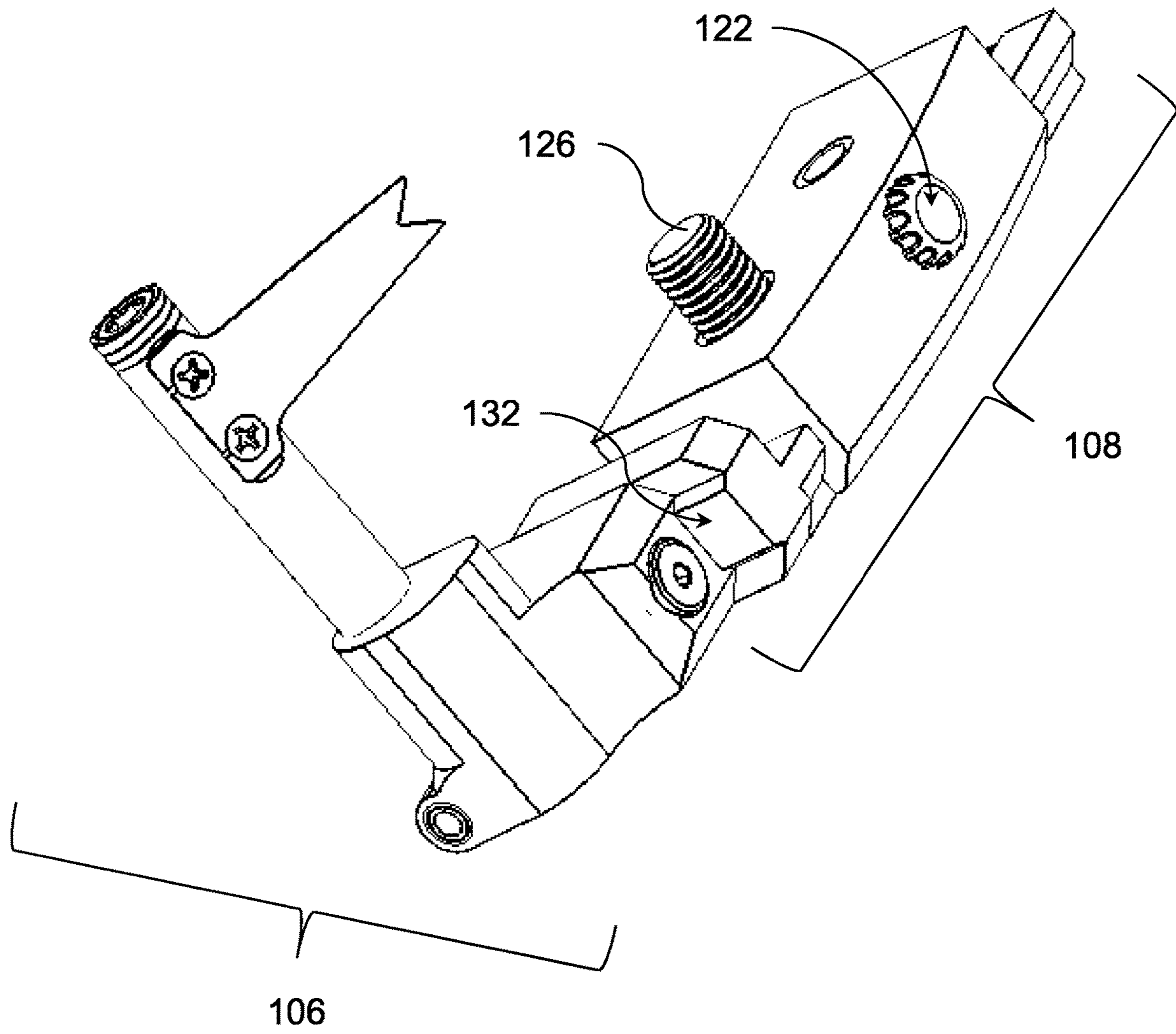


FIG. 6



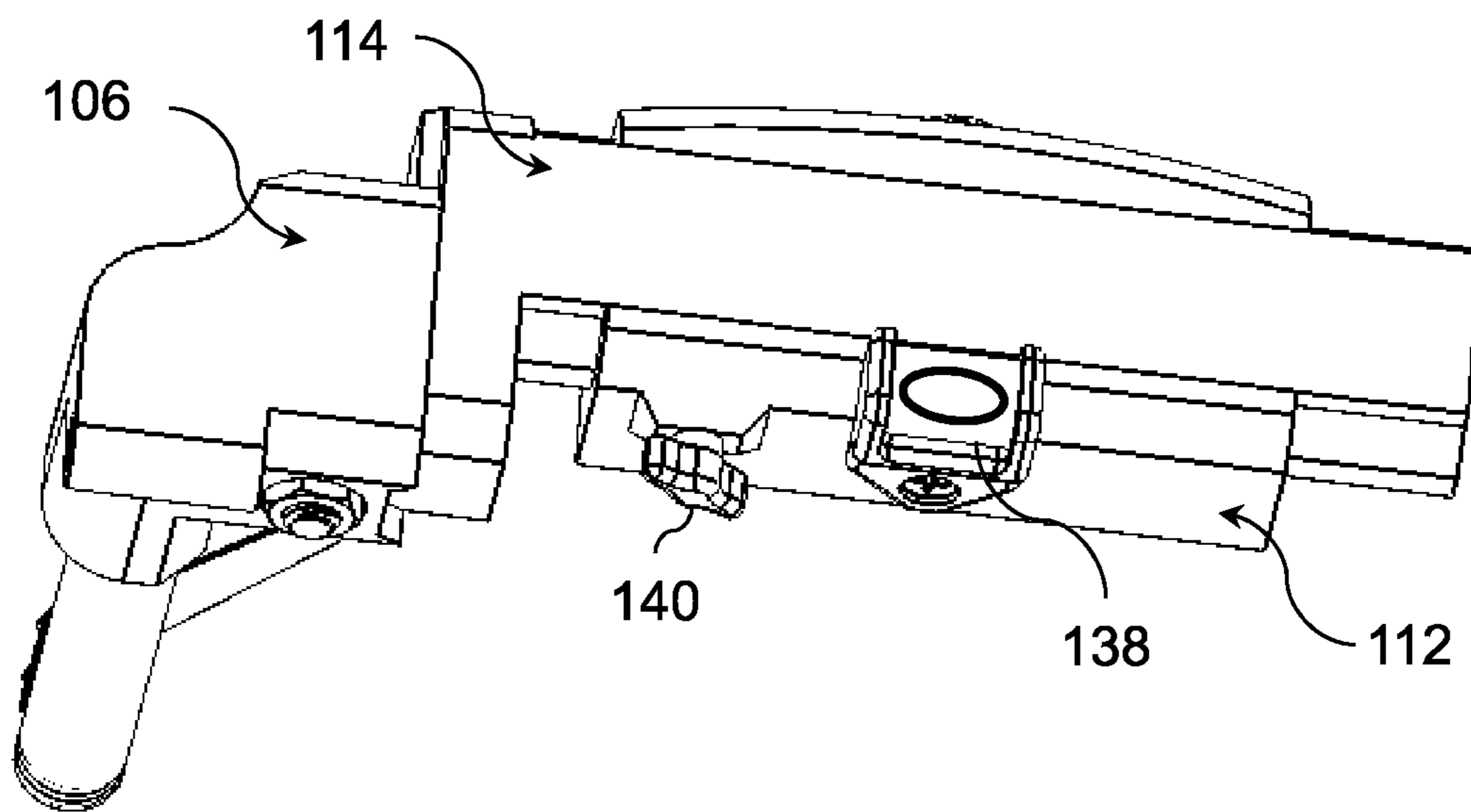


FIG. 7

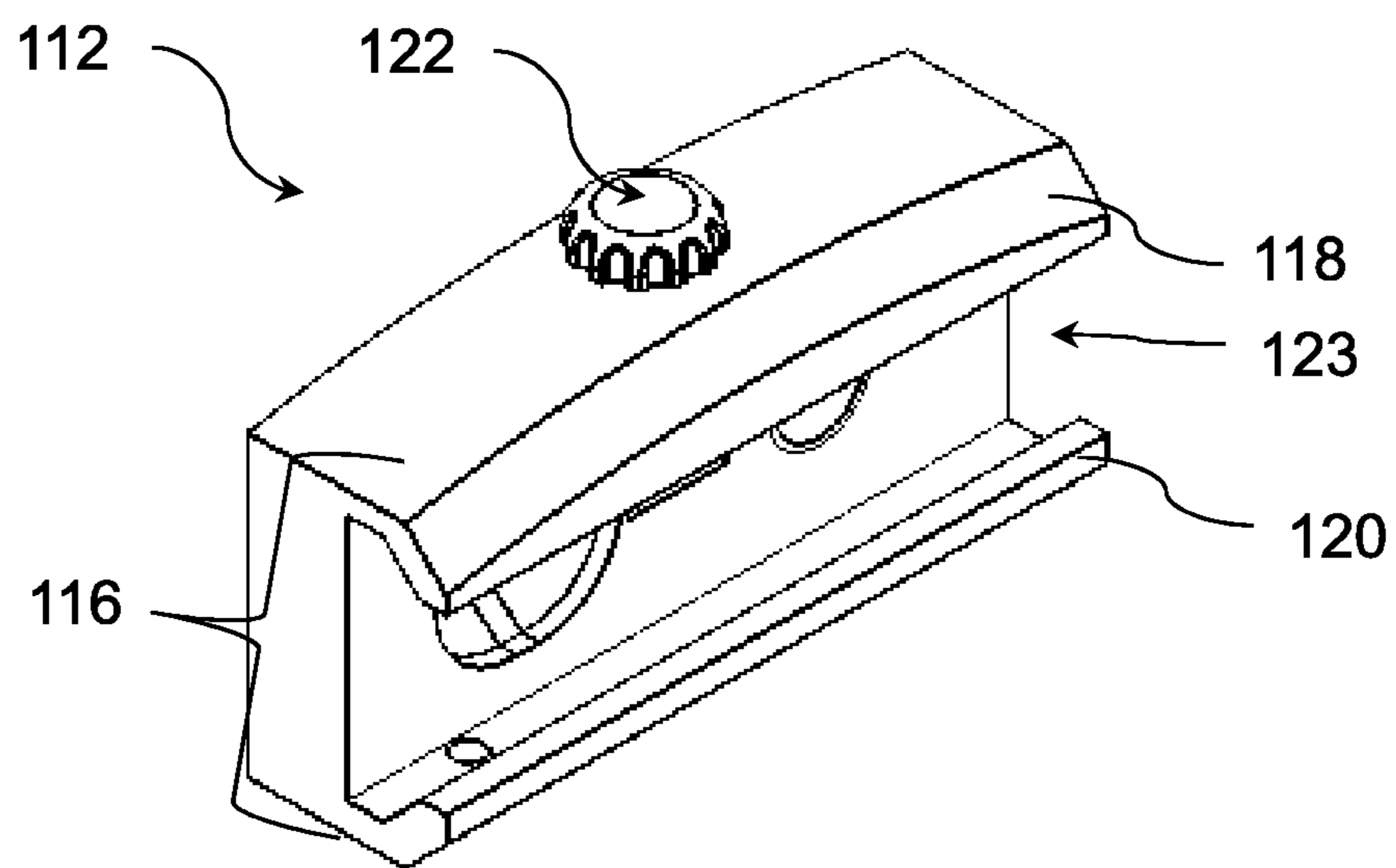


FIG. 8

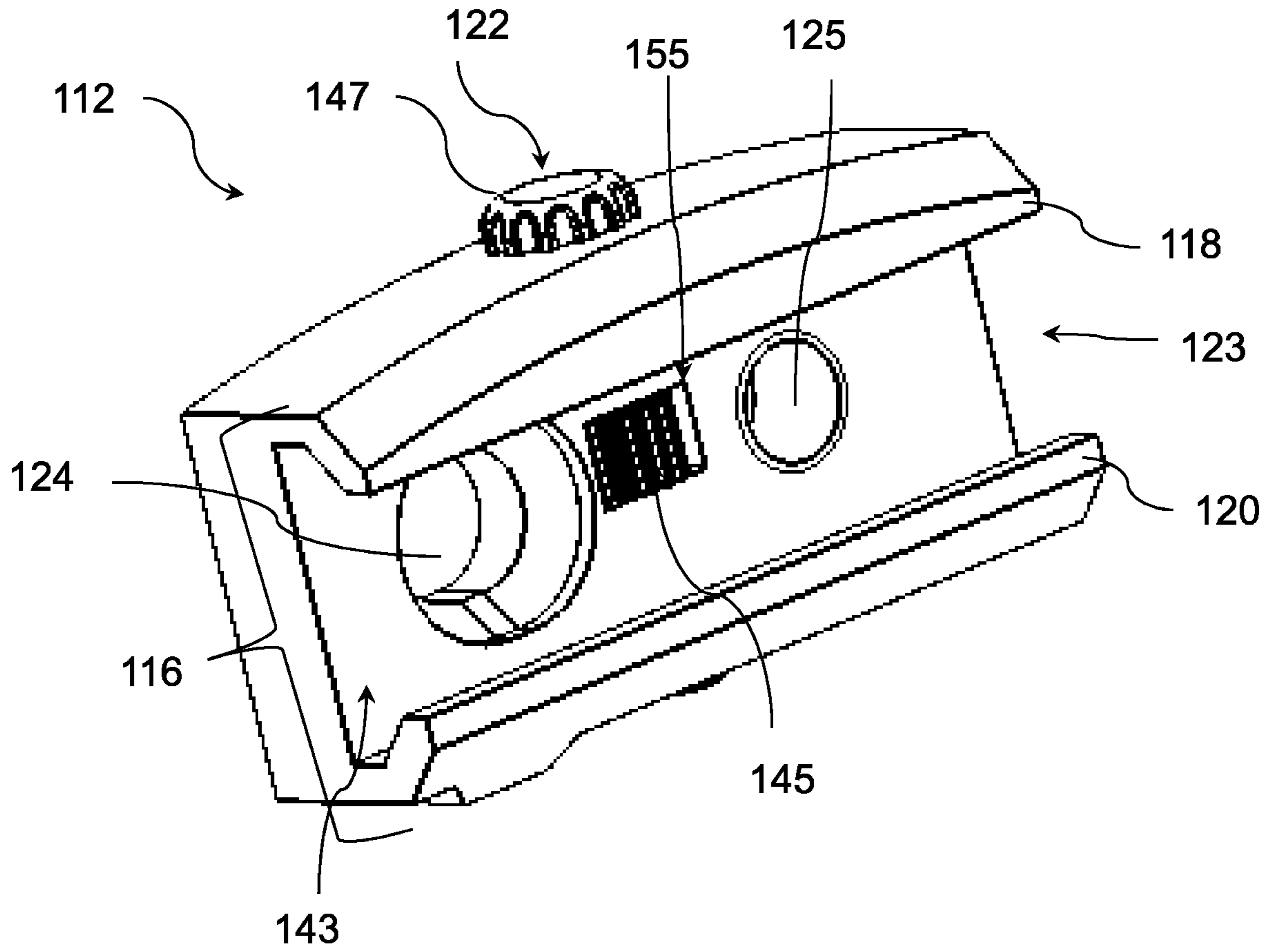


FIG. 9

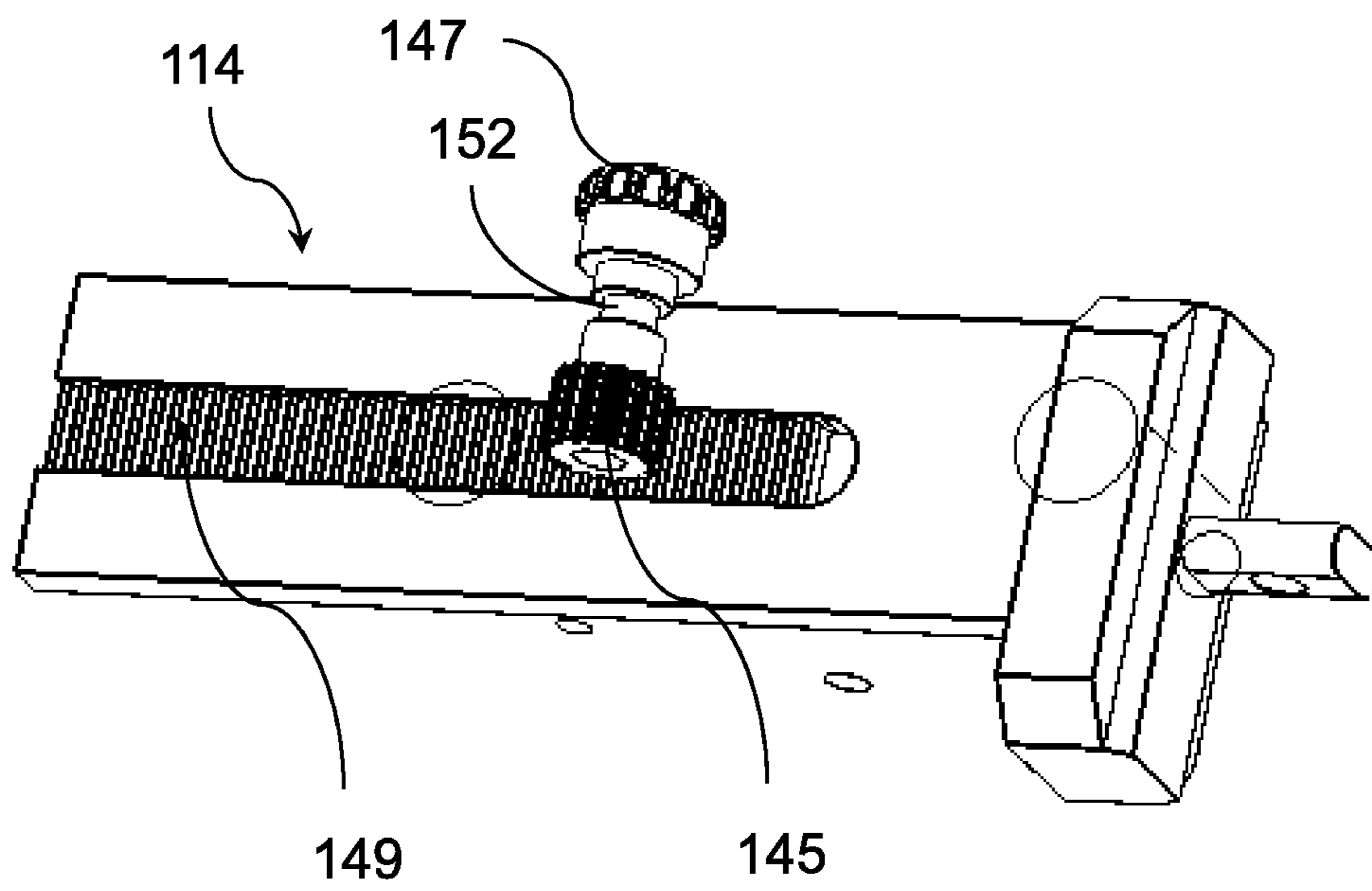


FIG. 10

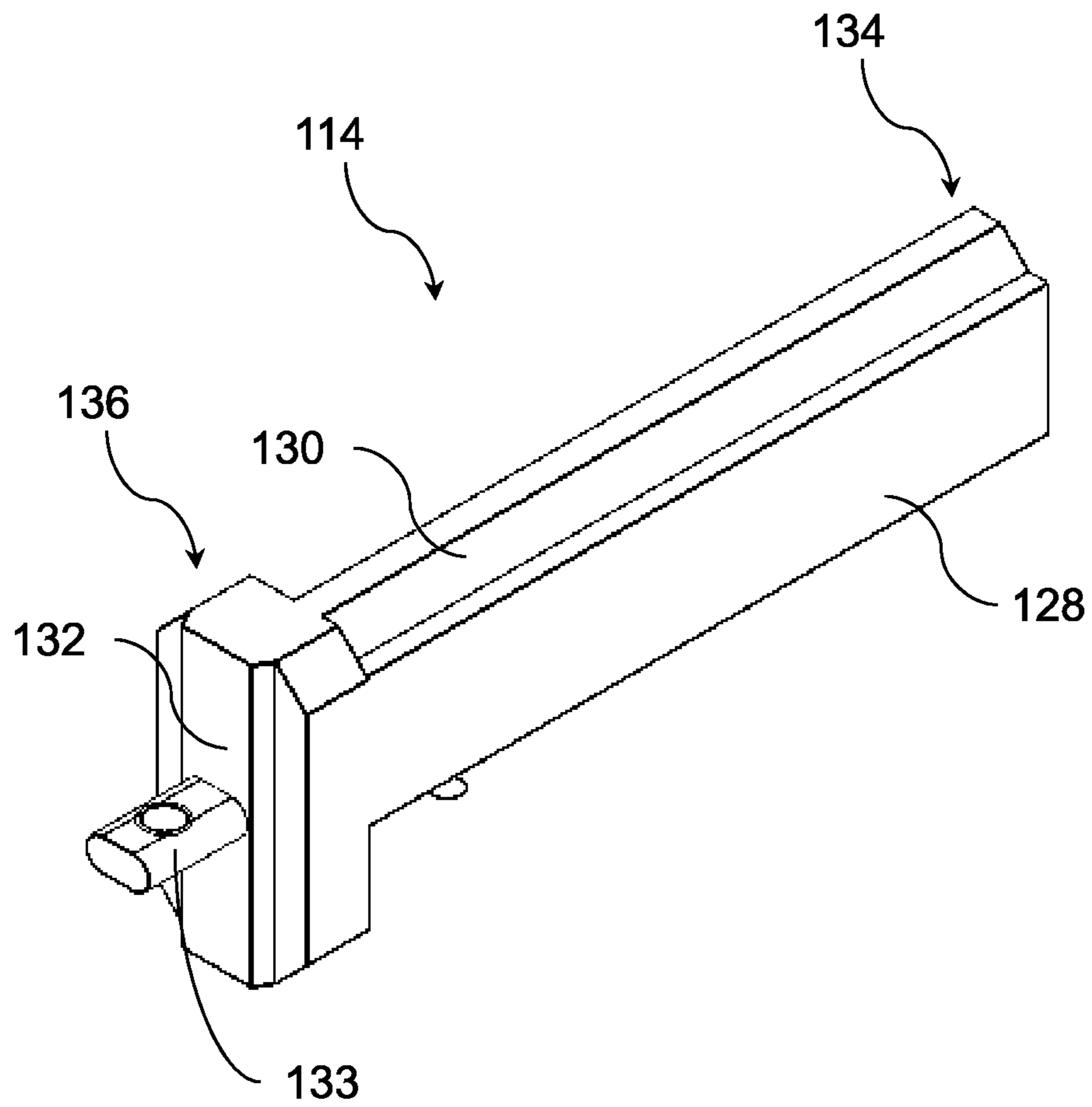


FIG. 11

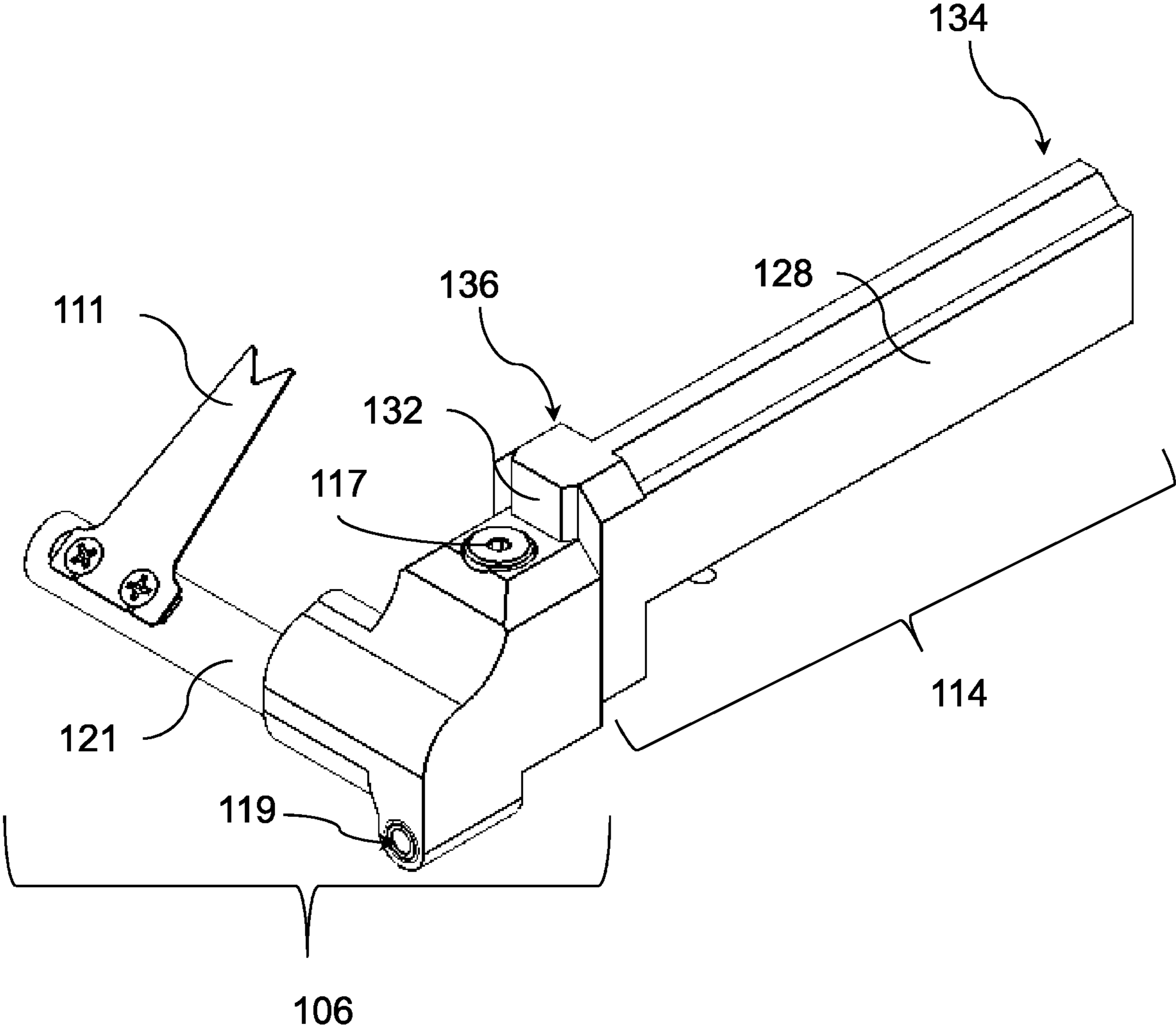


FIG. 12

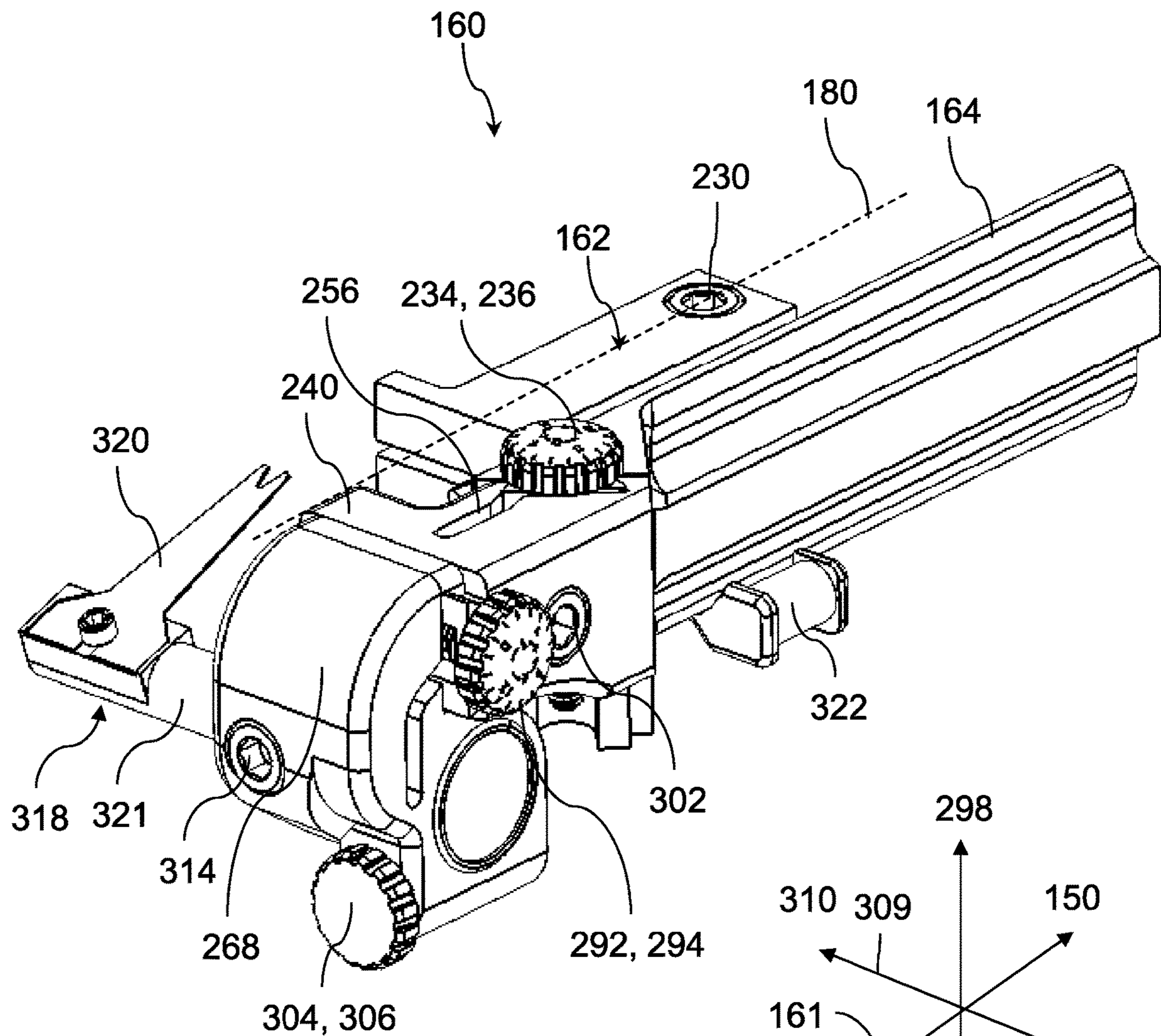
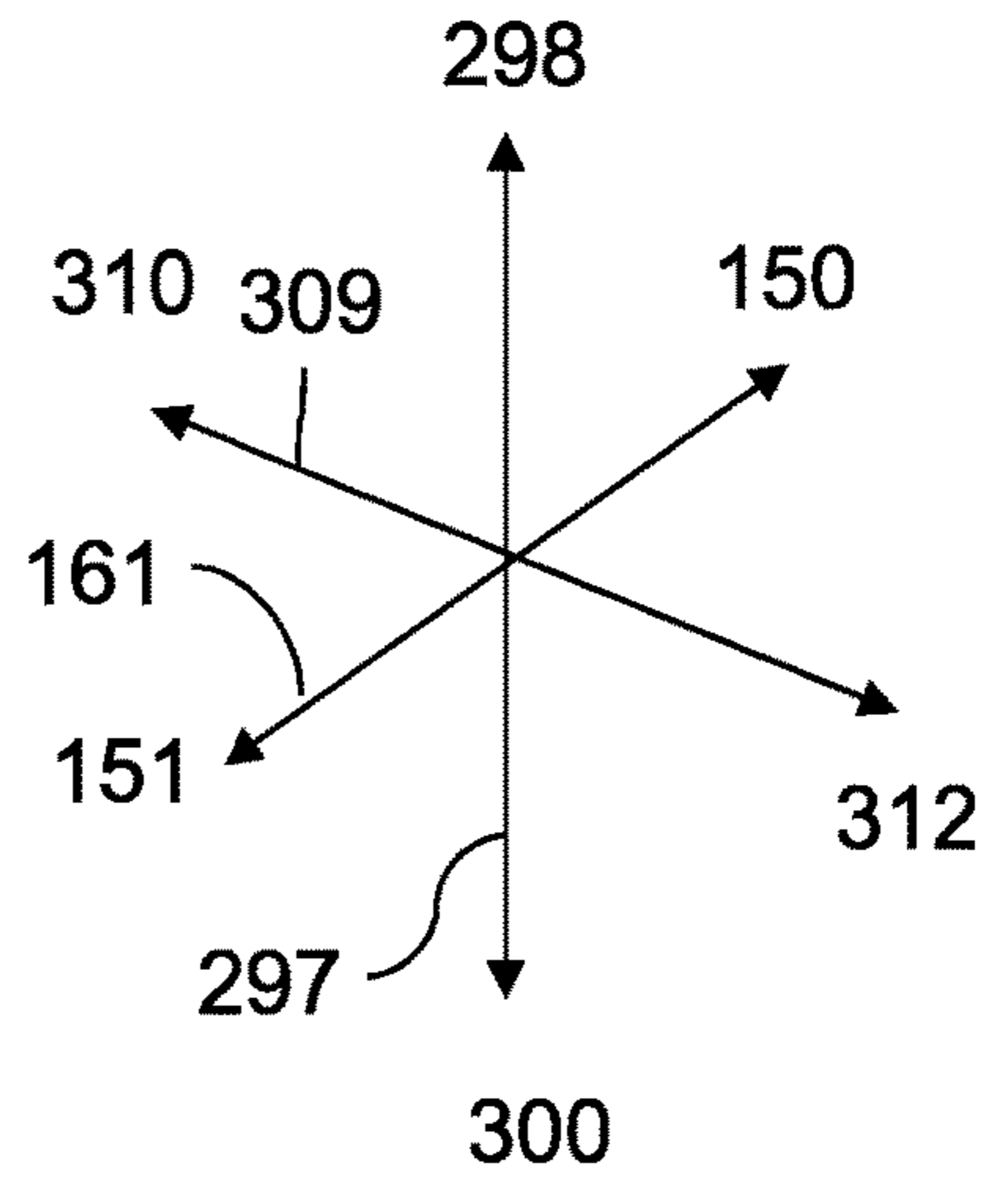


FIG. 13



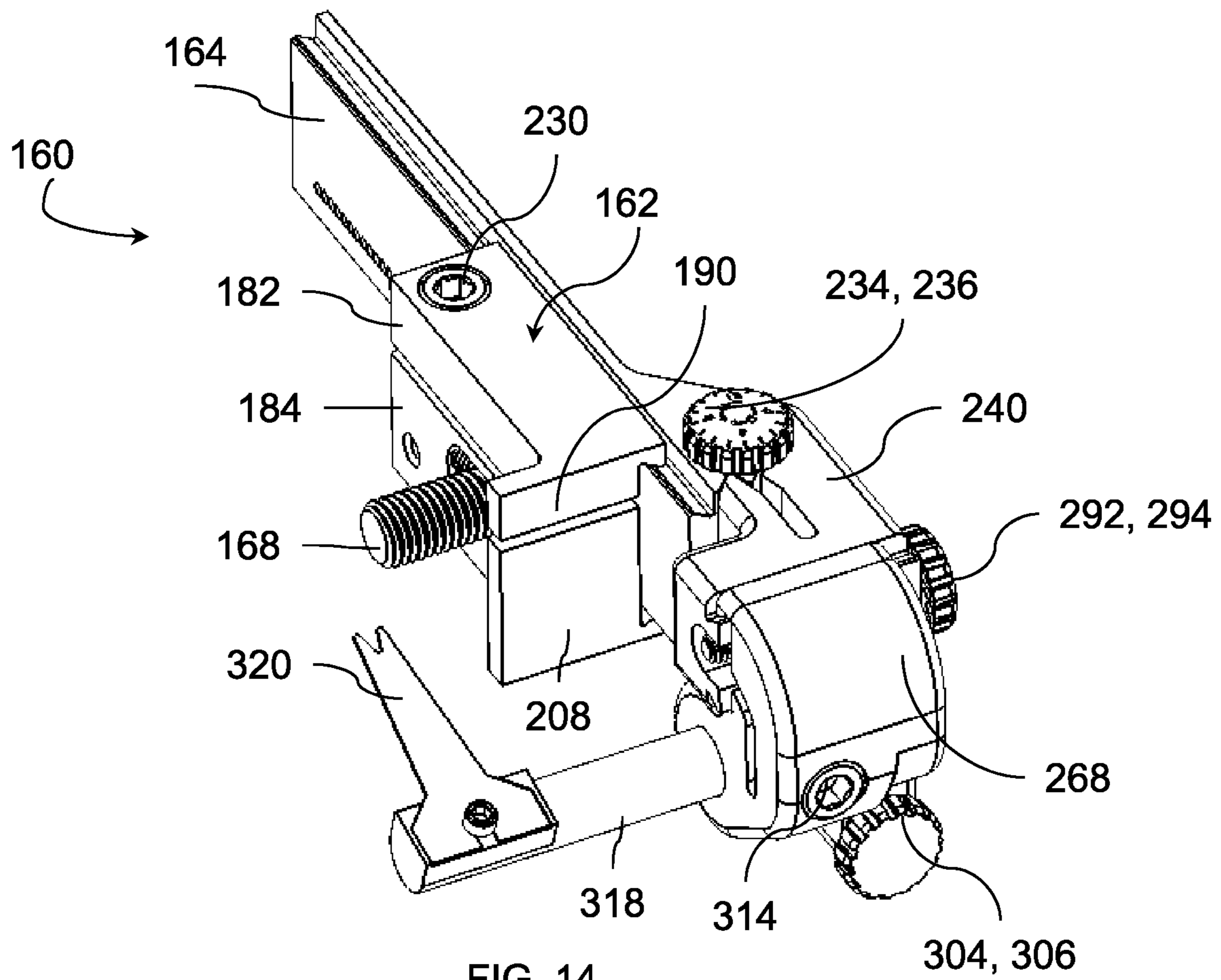


FIG. 14

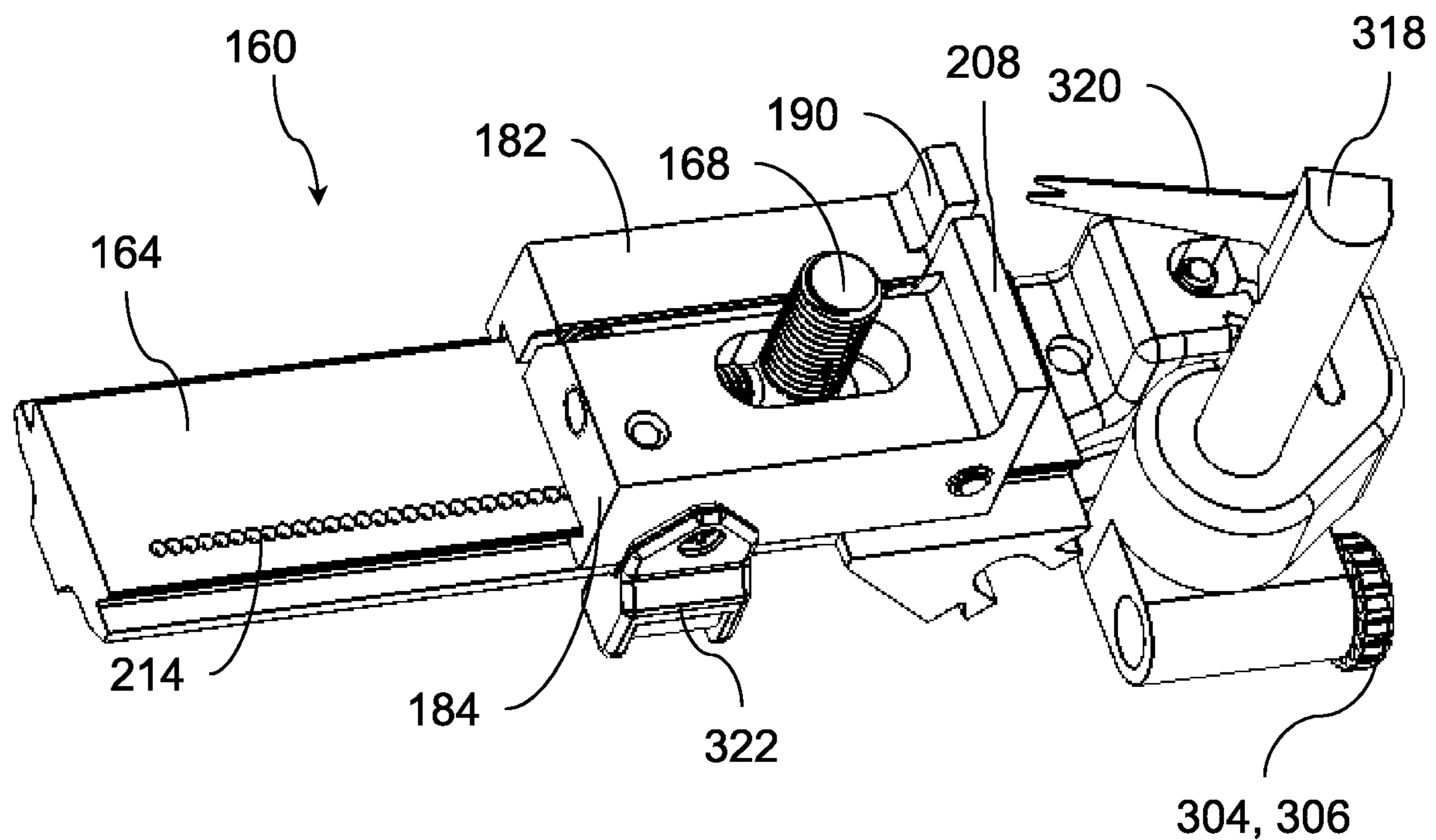
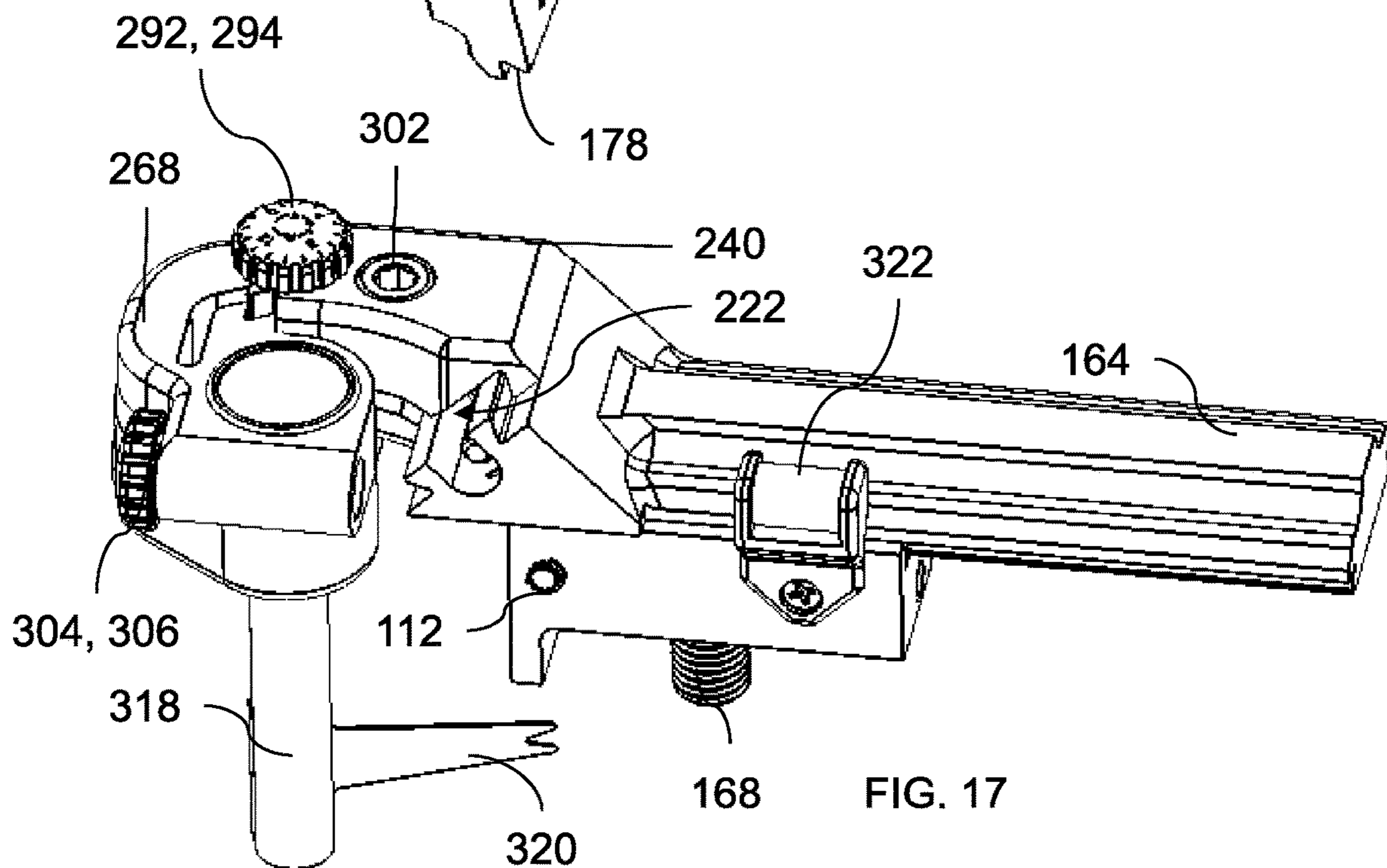
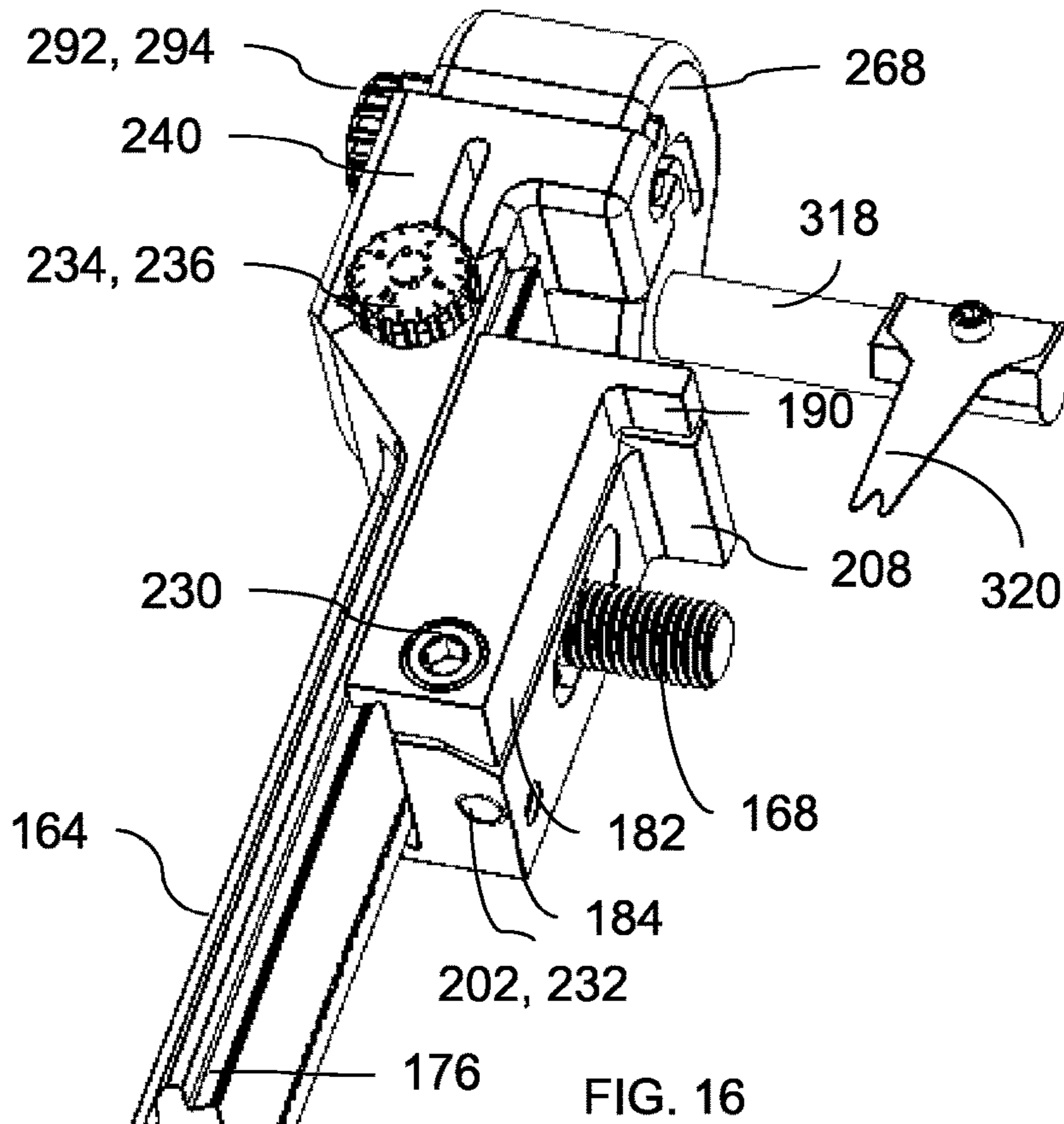


FIG. 15





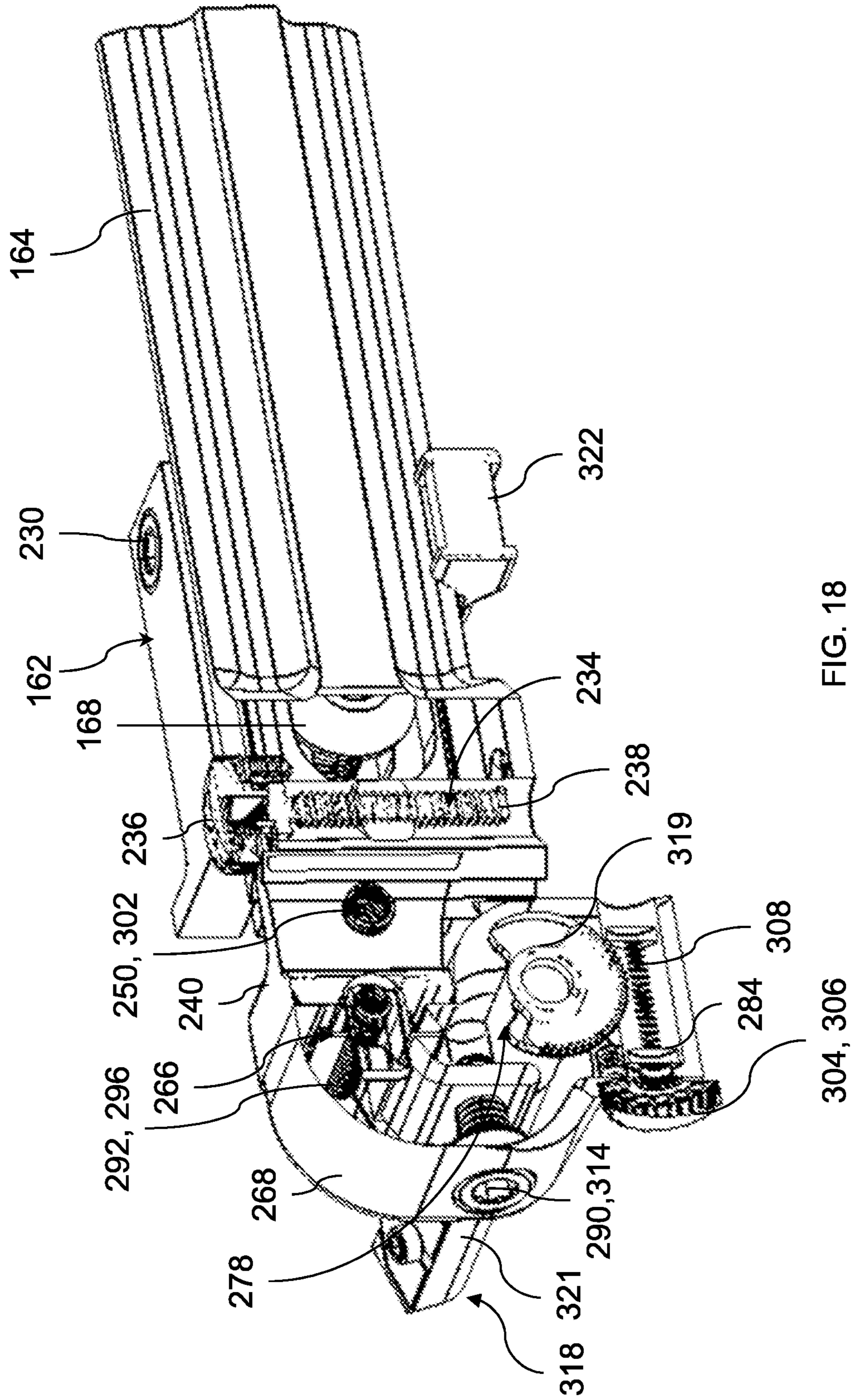


FIG. 18

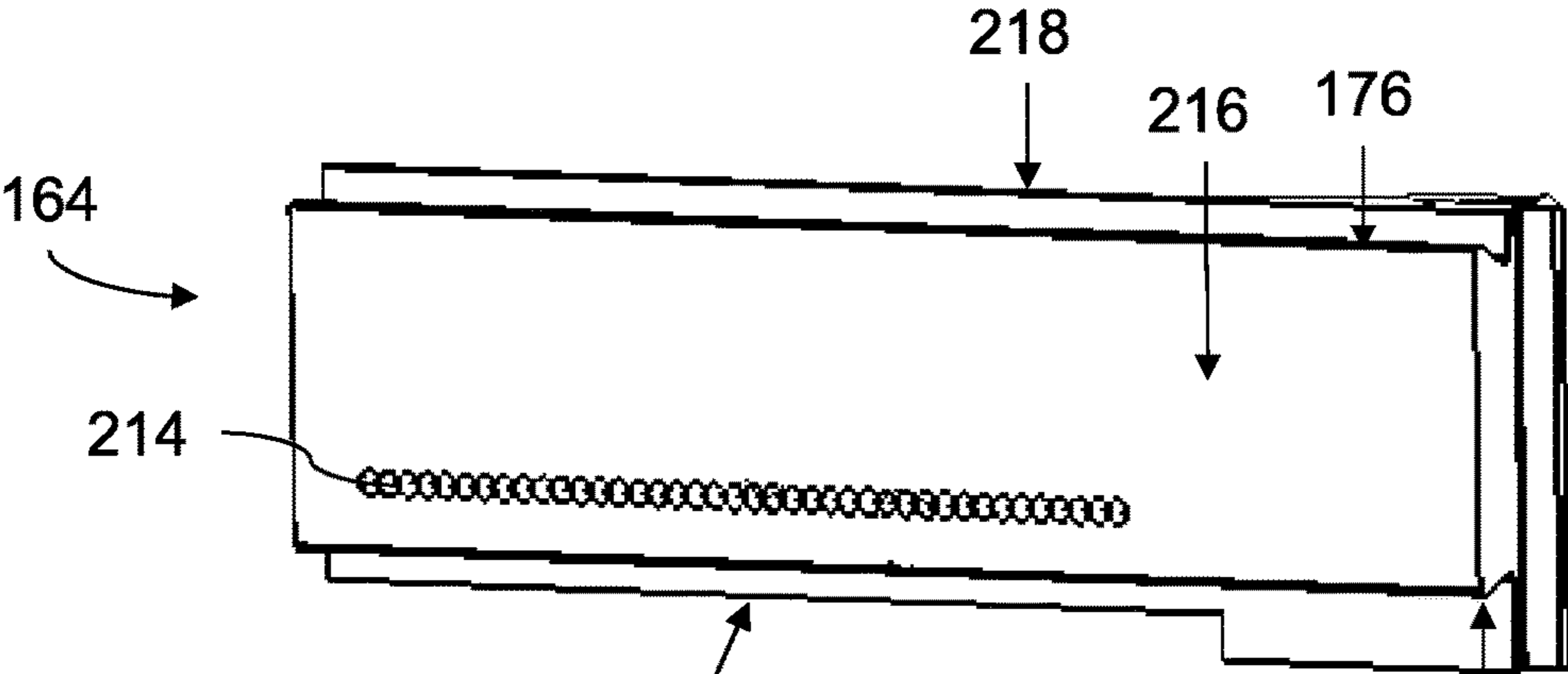


FIG. 19a

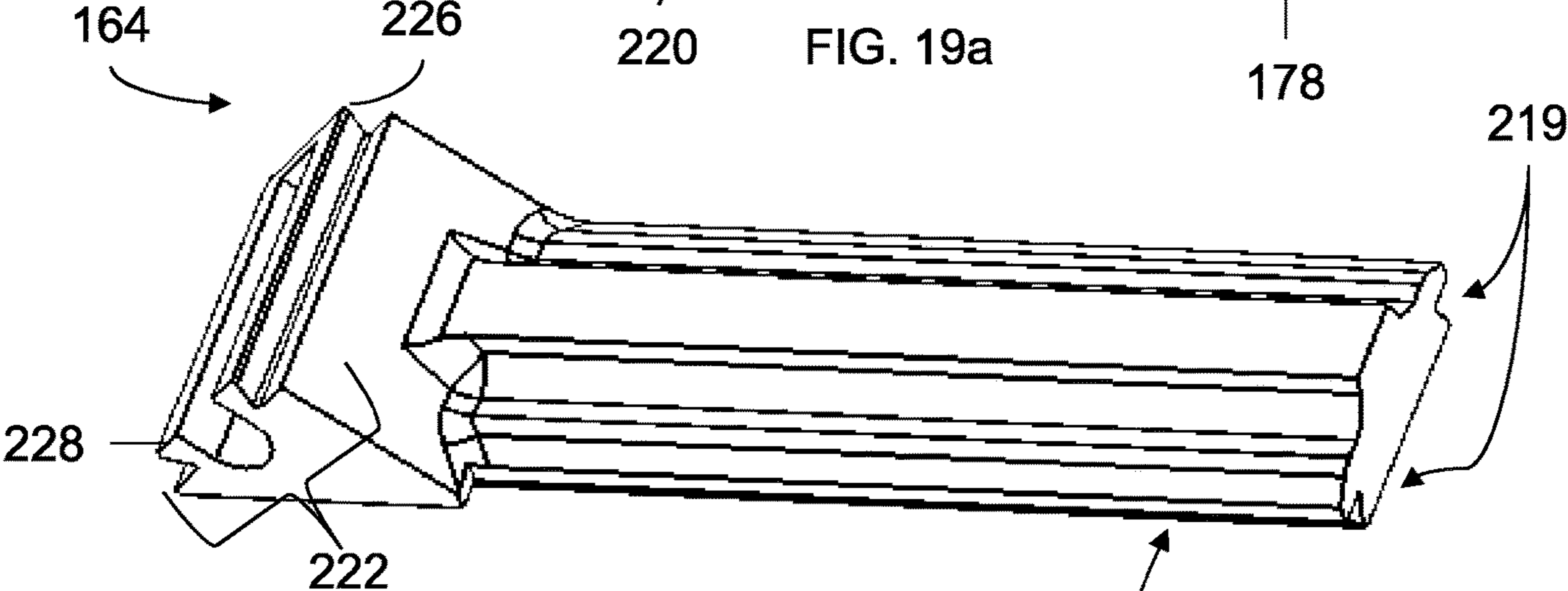


FIG. 19b

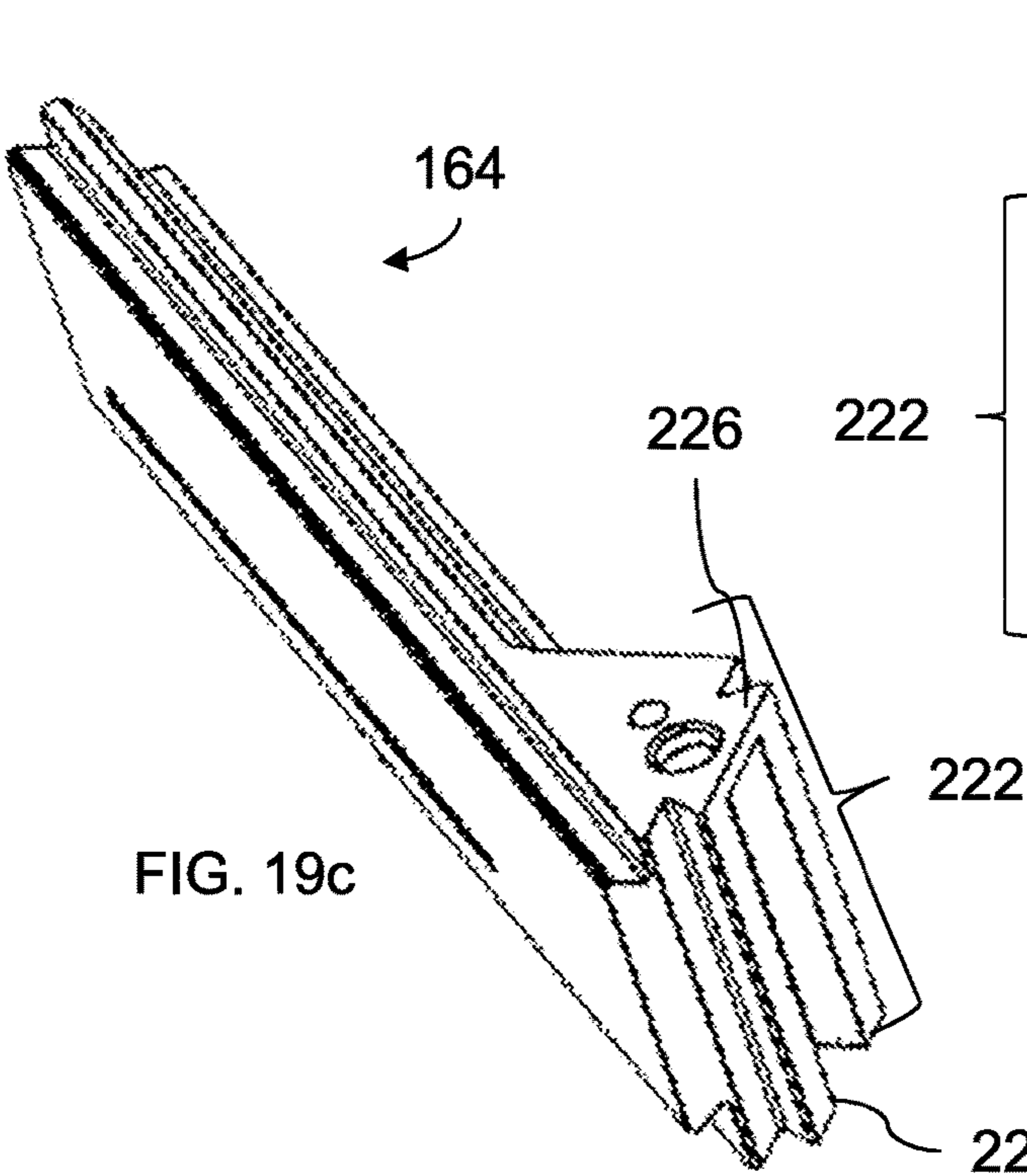


FIG. 19c

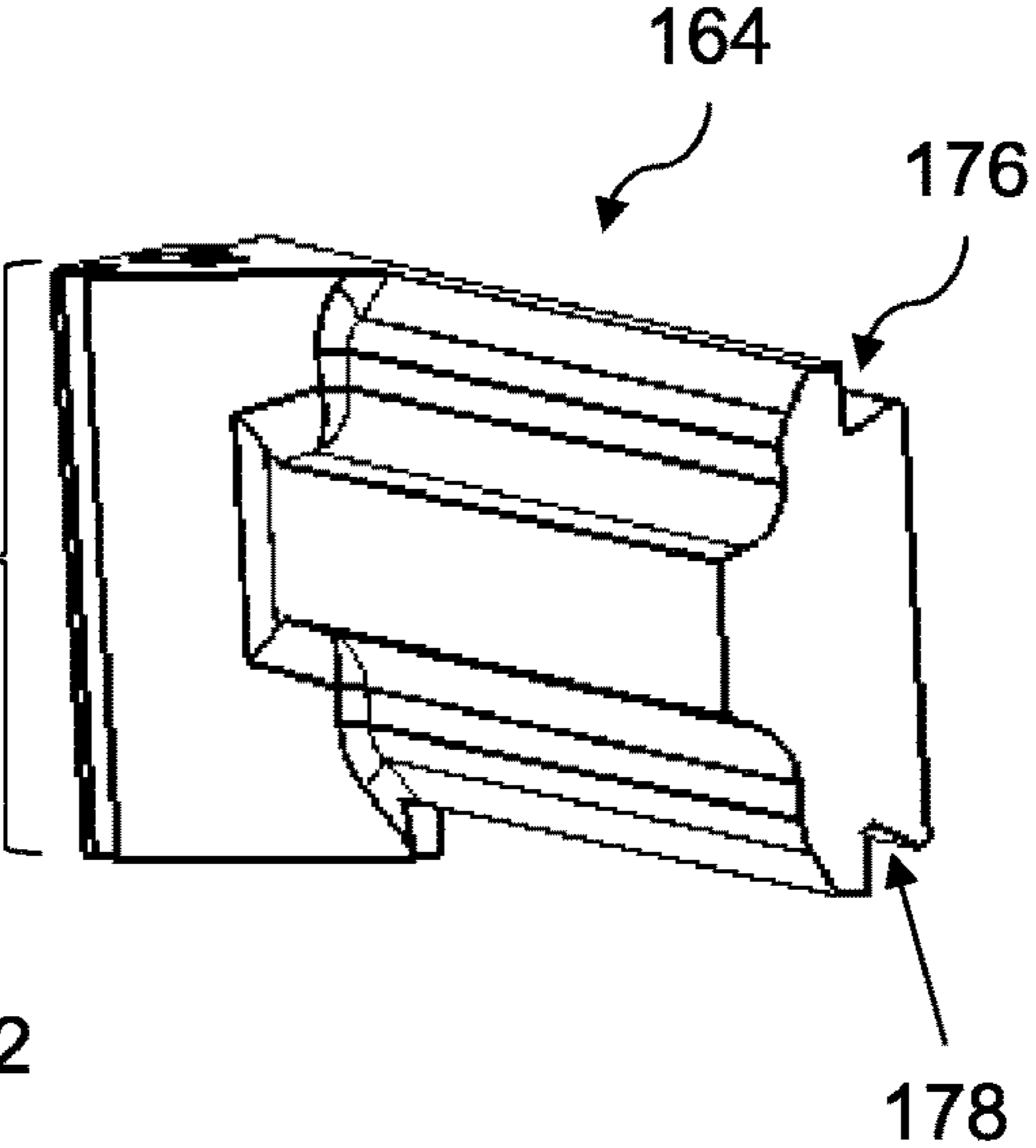


FIG. 19d

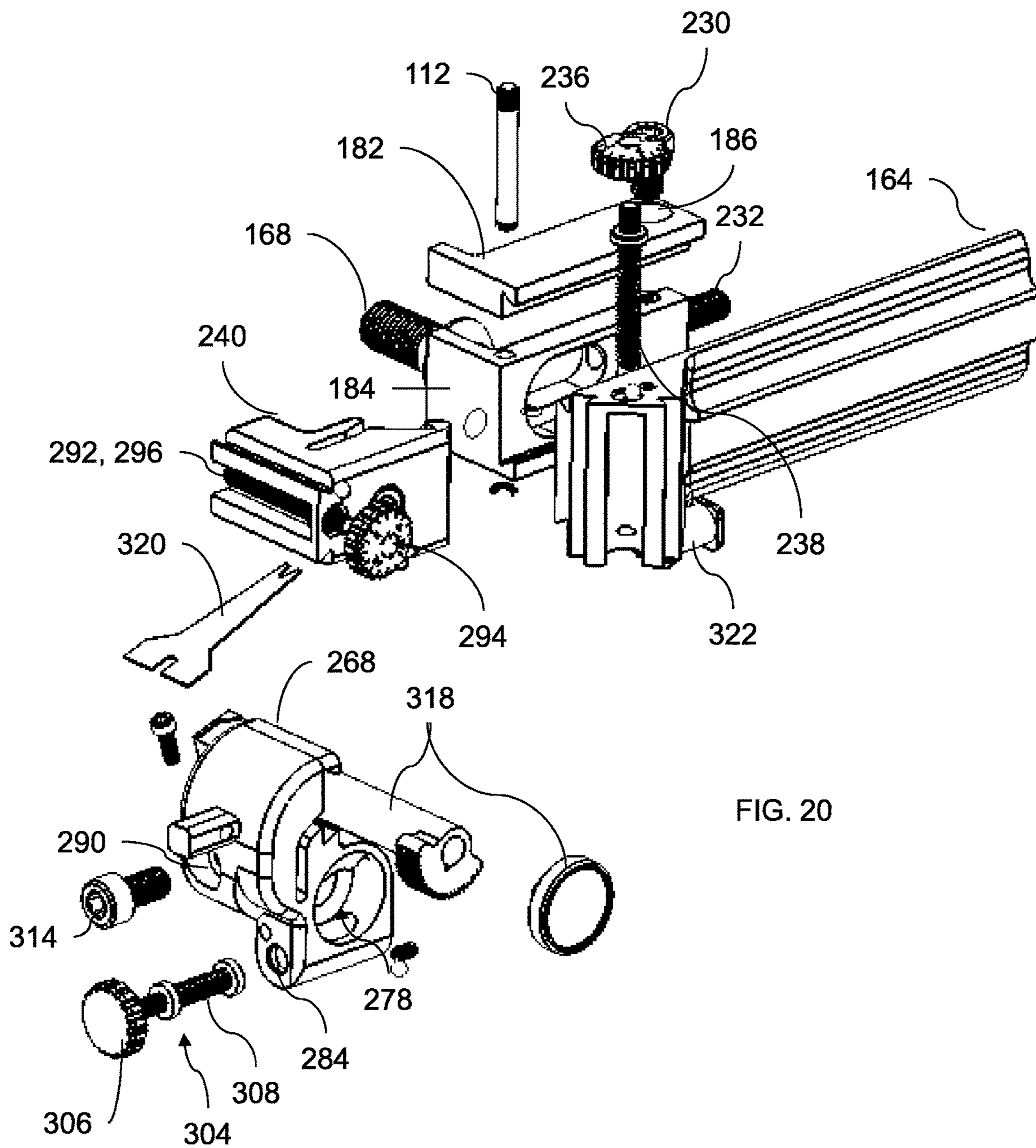
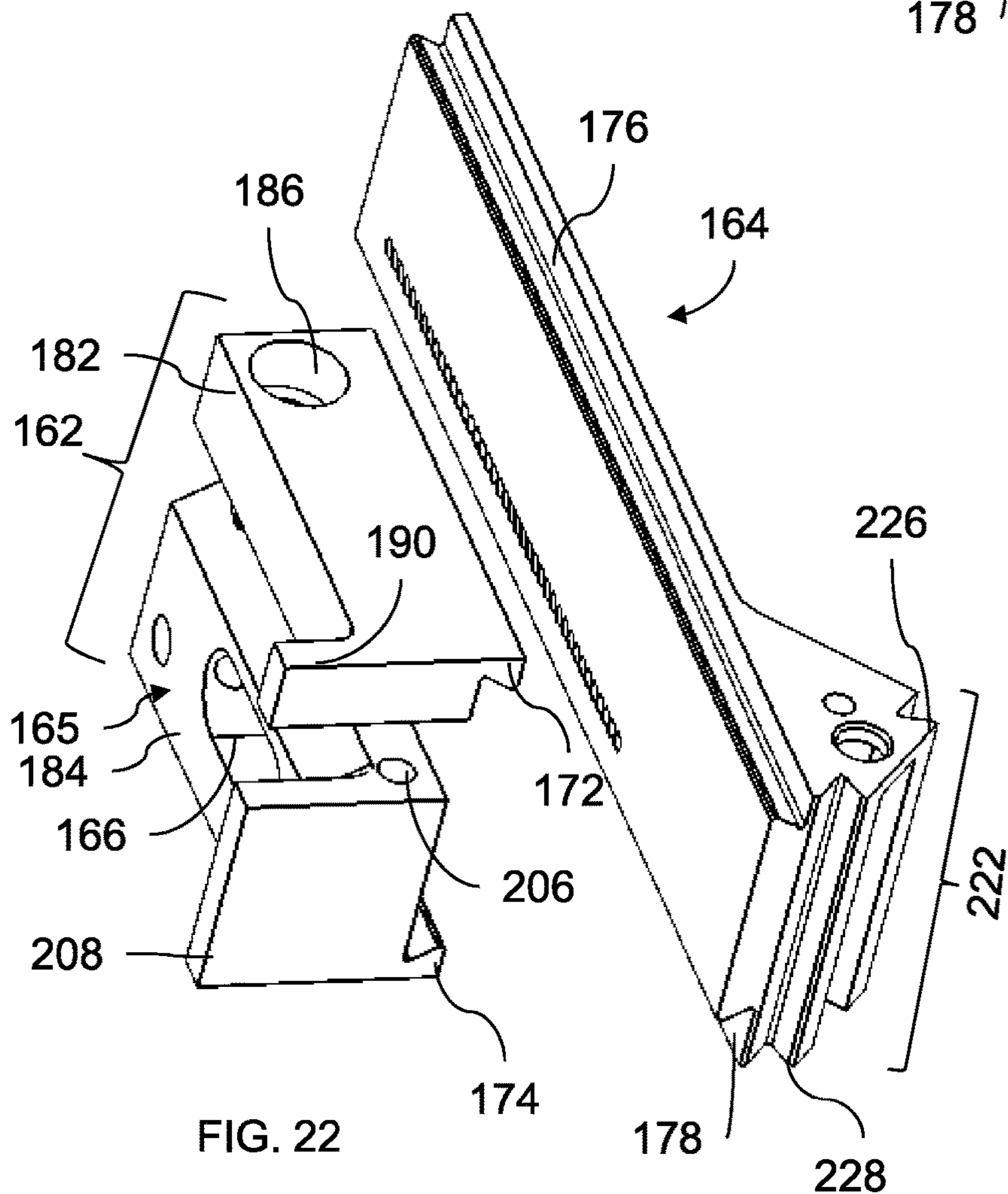
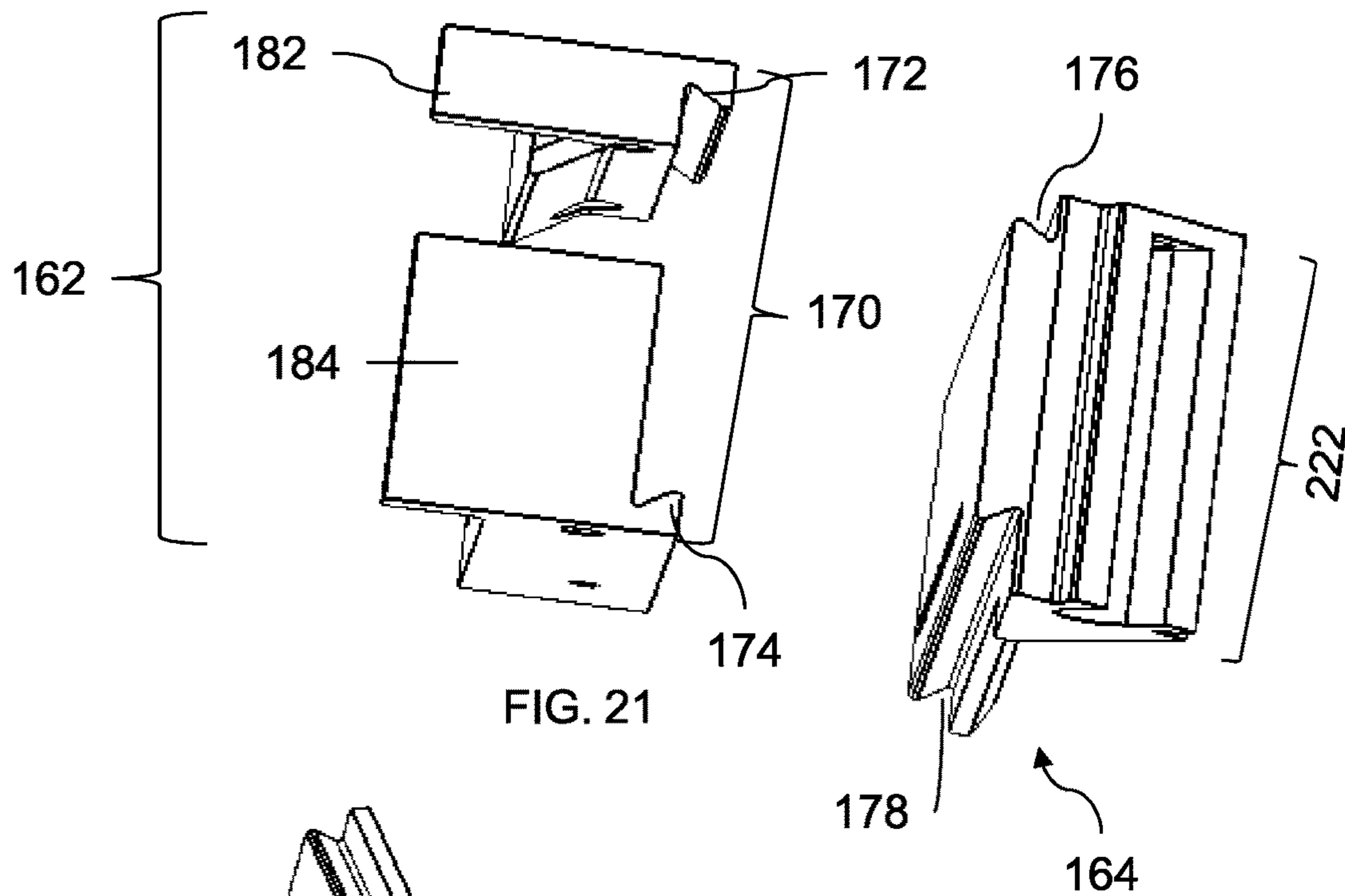
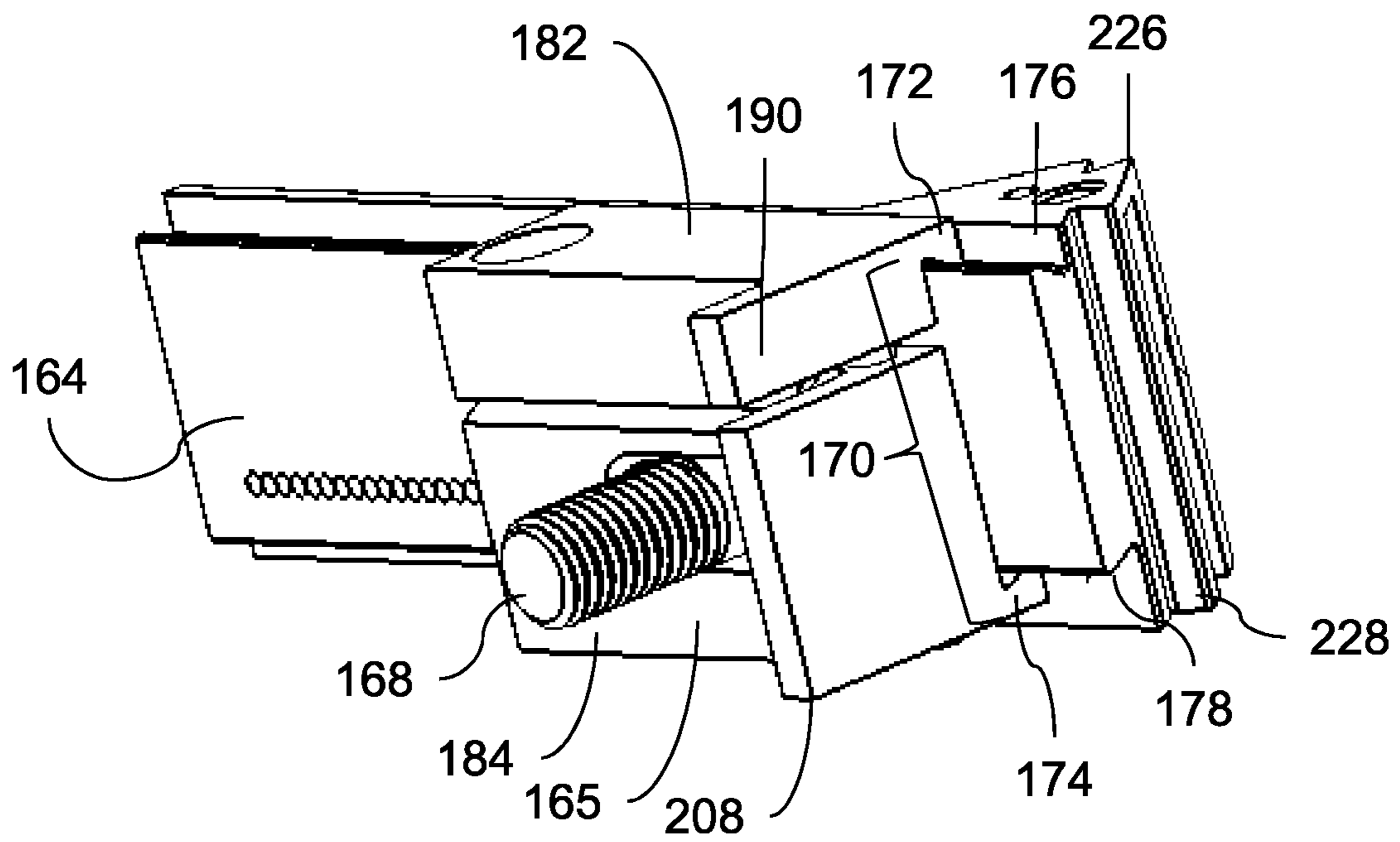
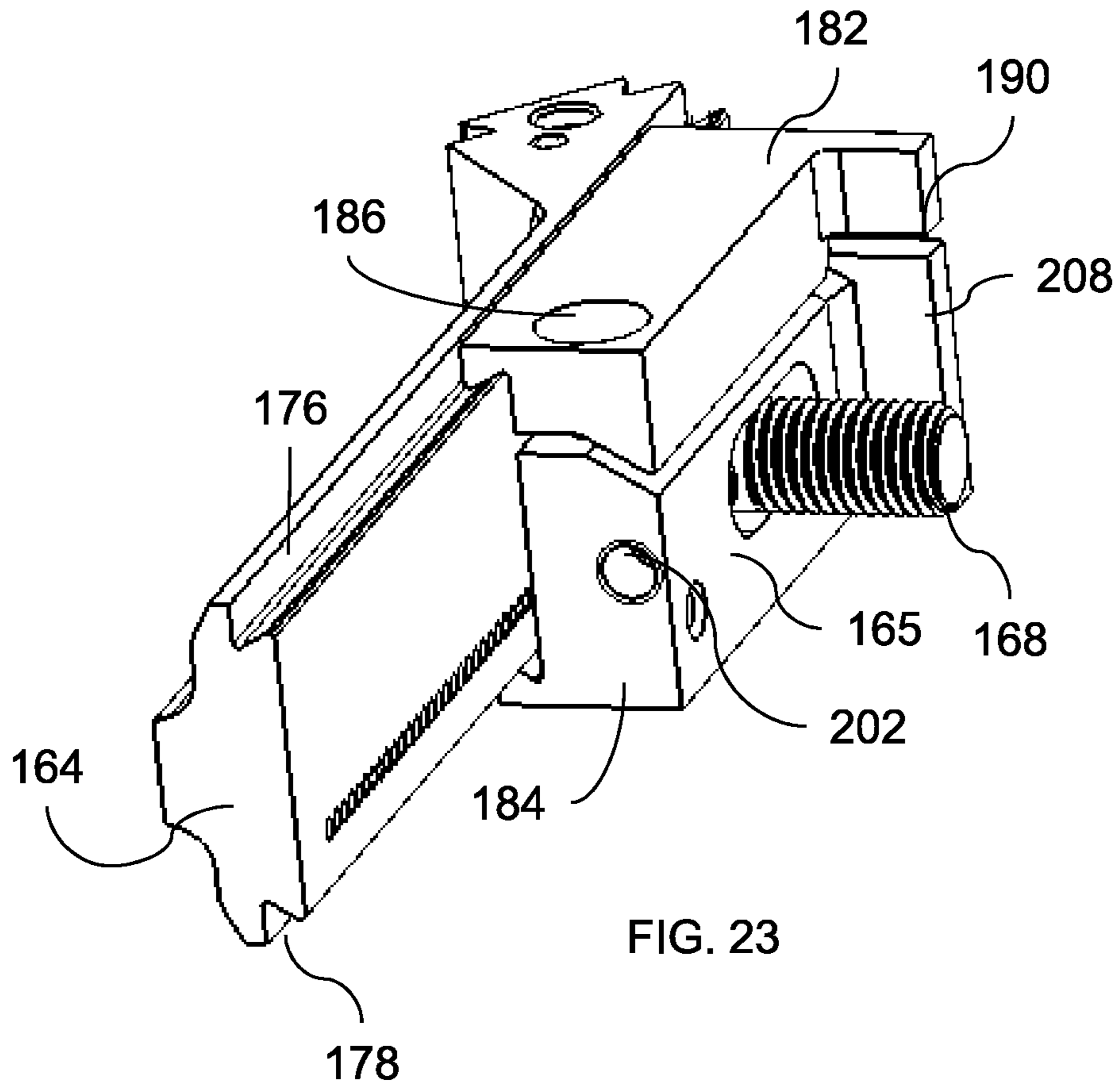


FIG. 20





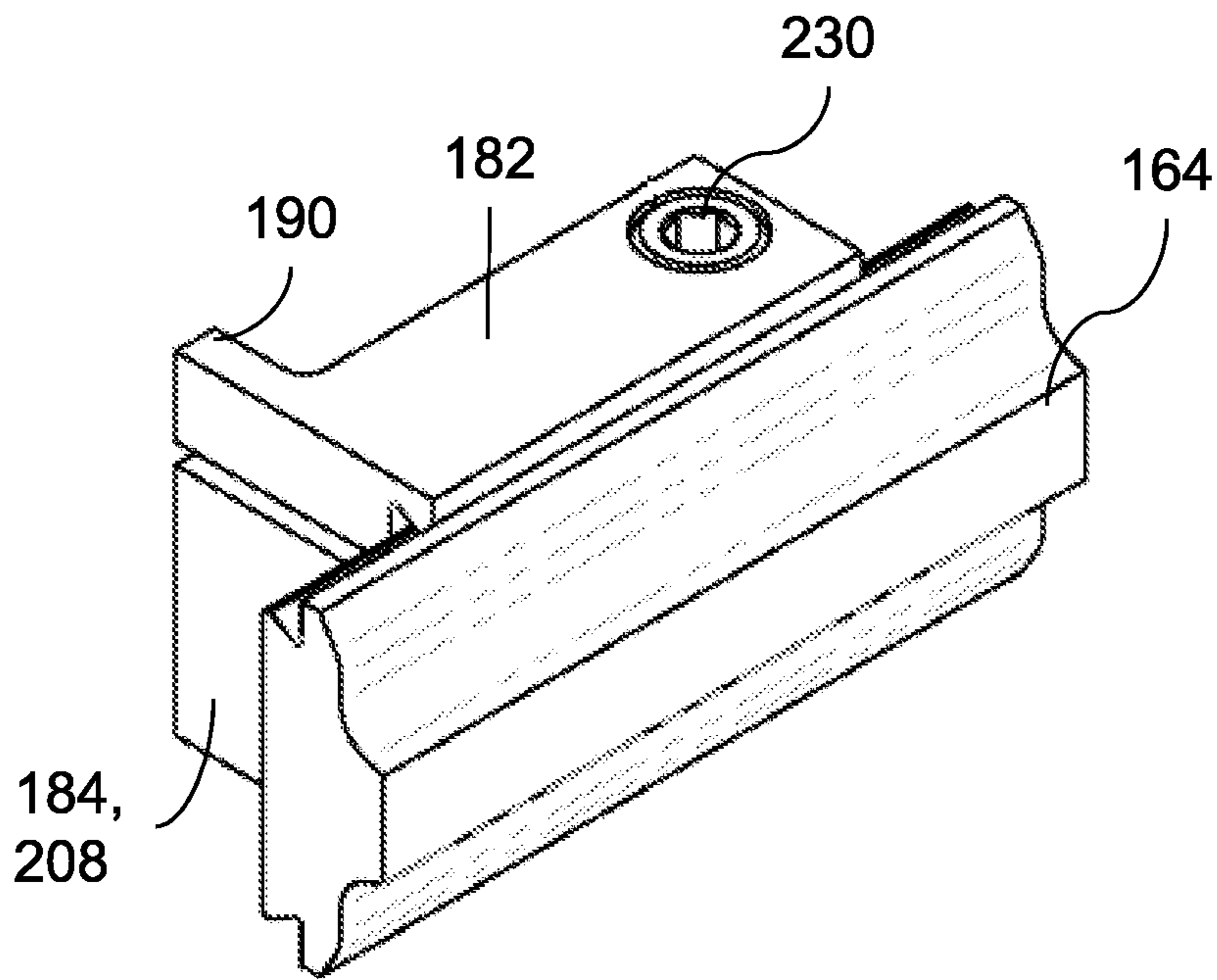


FIG. 25

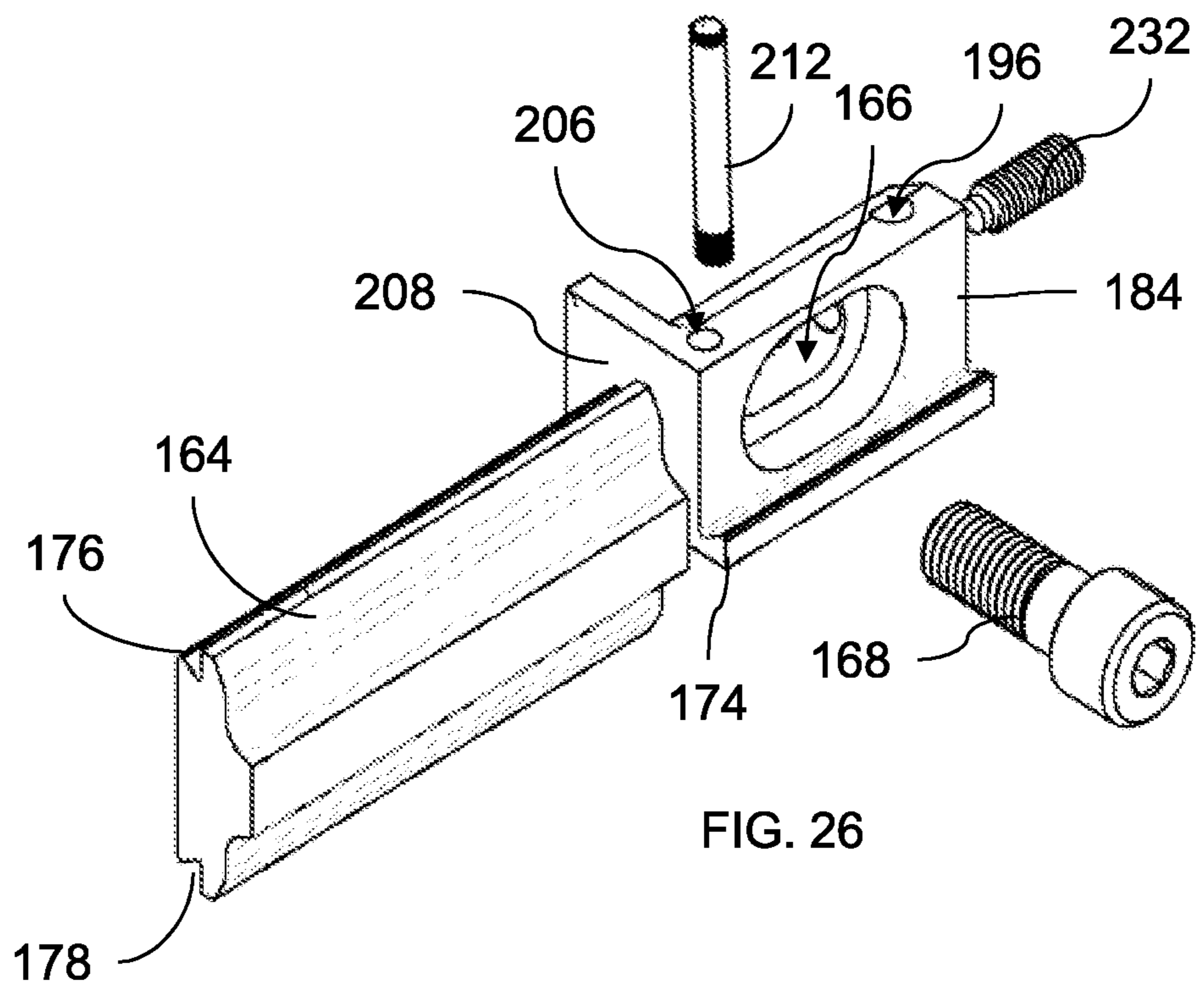
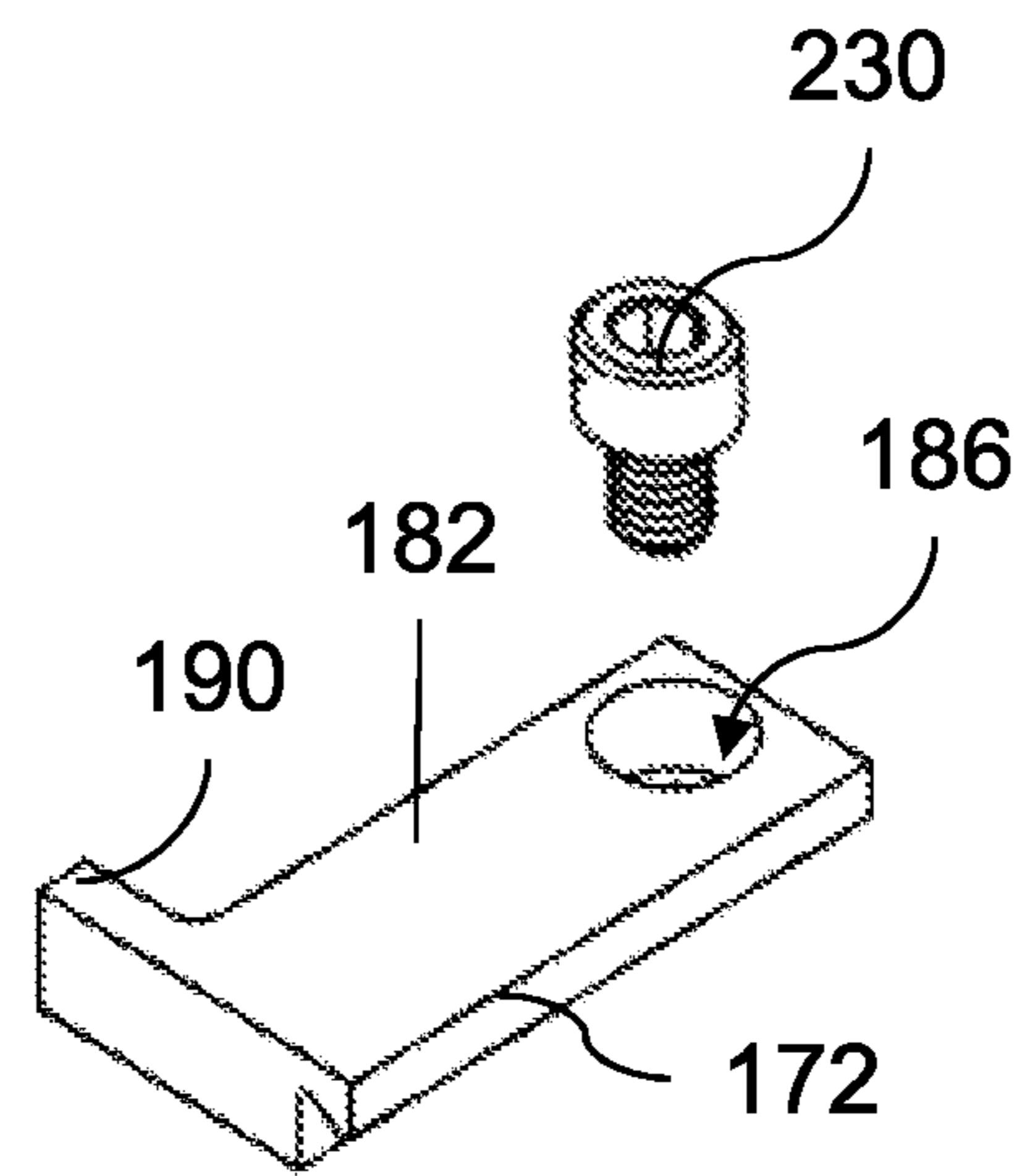


FIG. 26

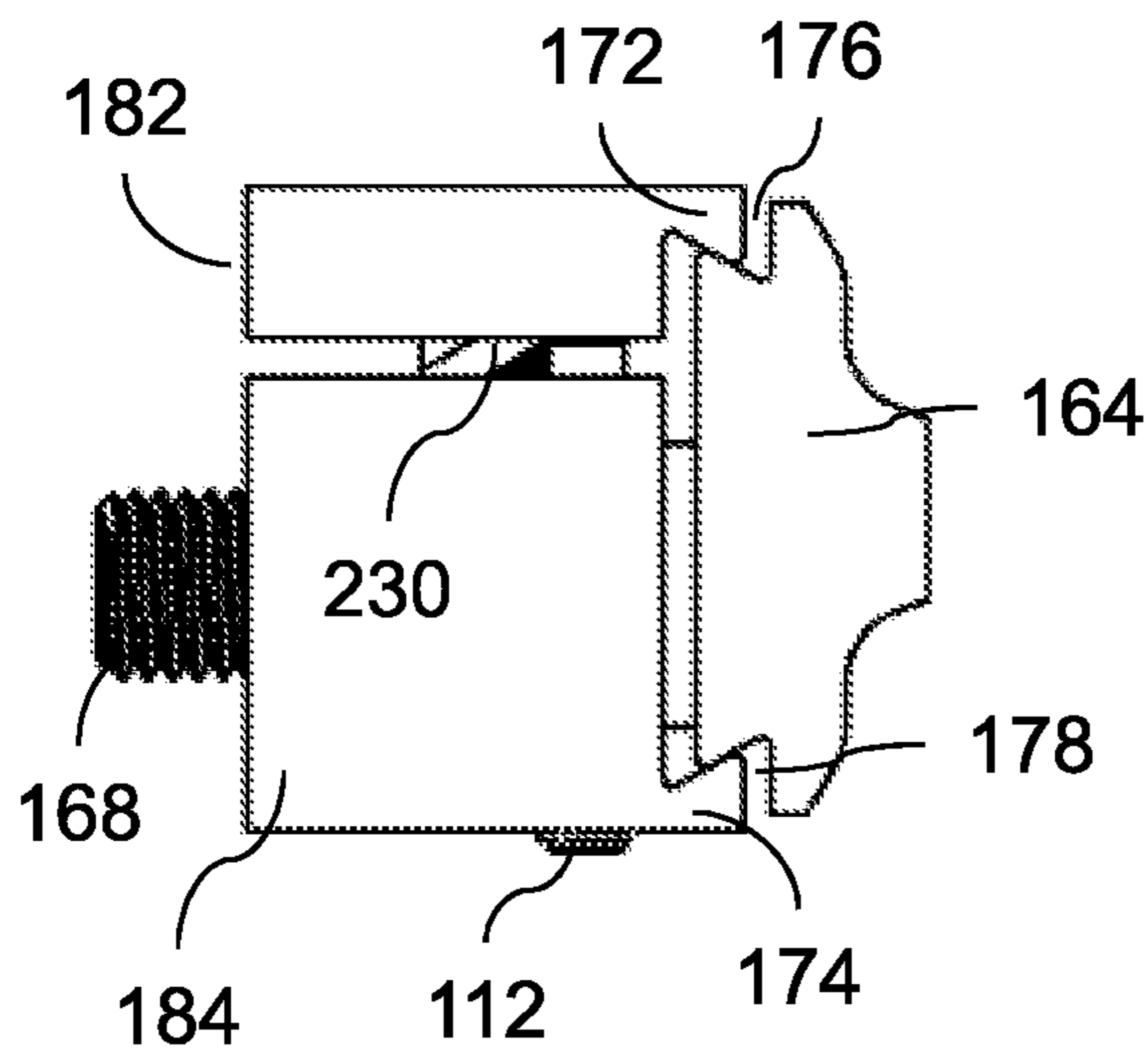


FIG. 27a

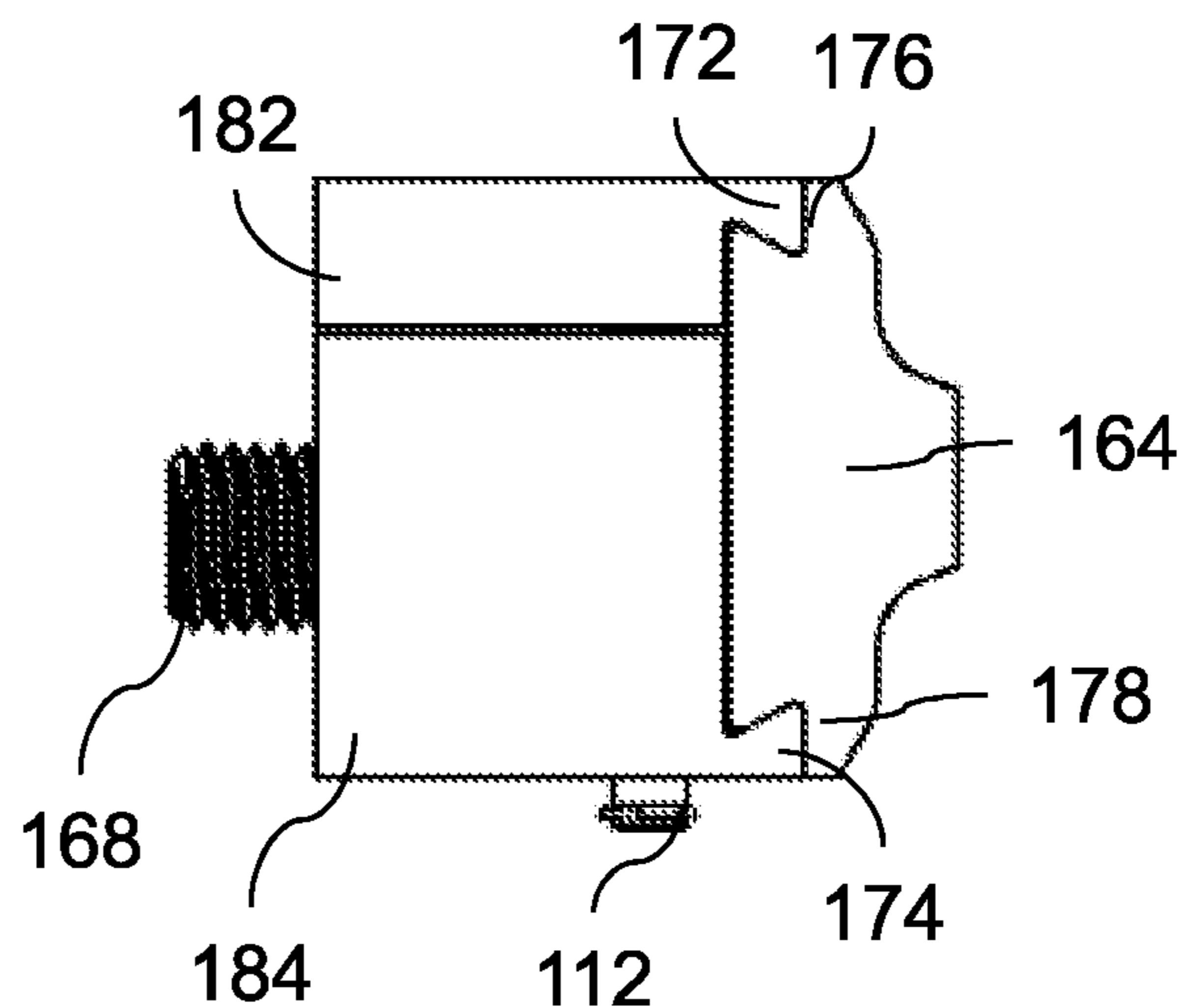


FIG. 27b

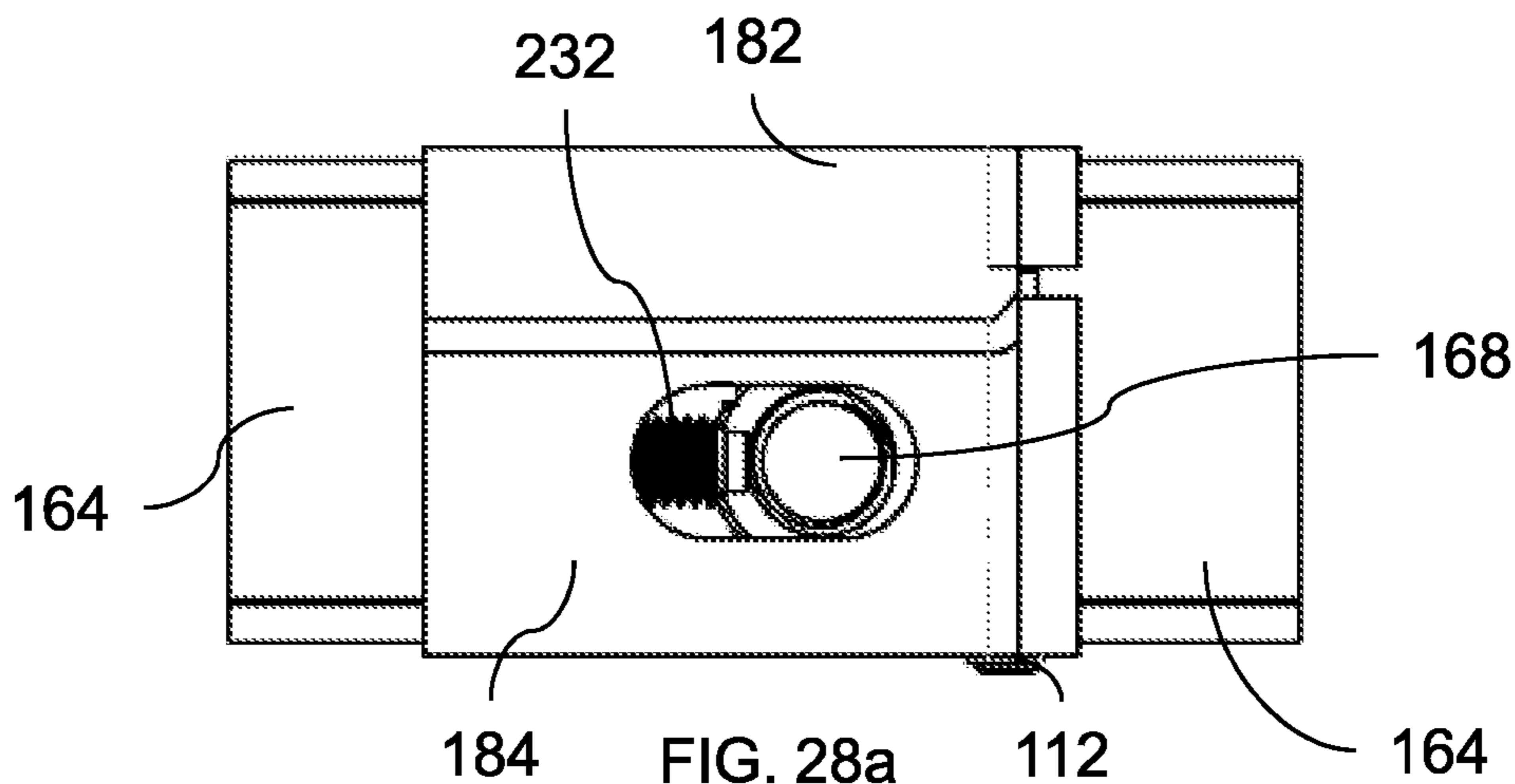


FIG. 28a

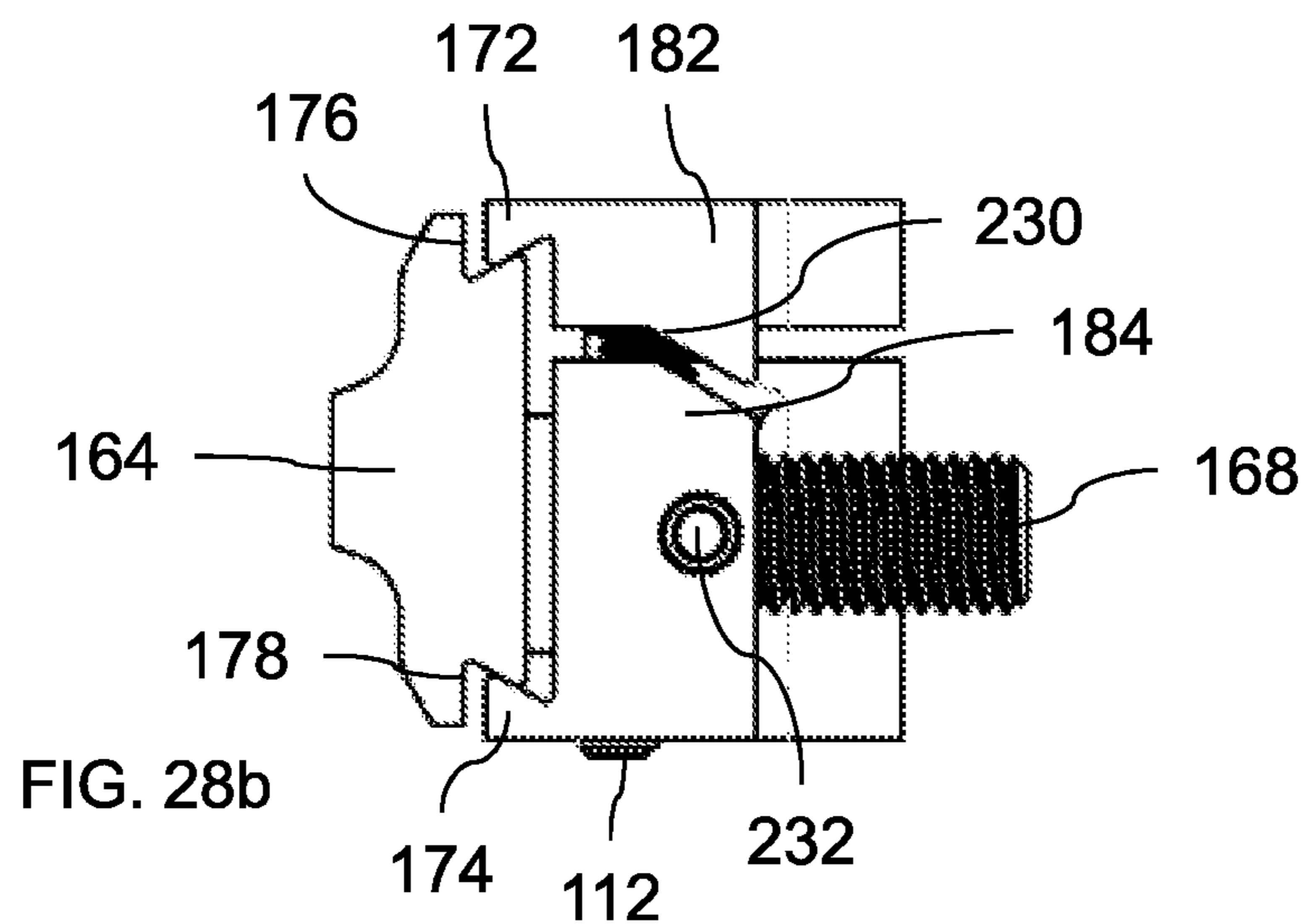


FIG. 28b



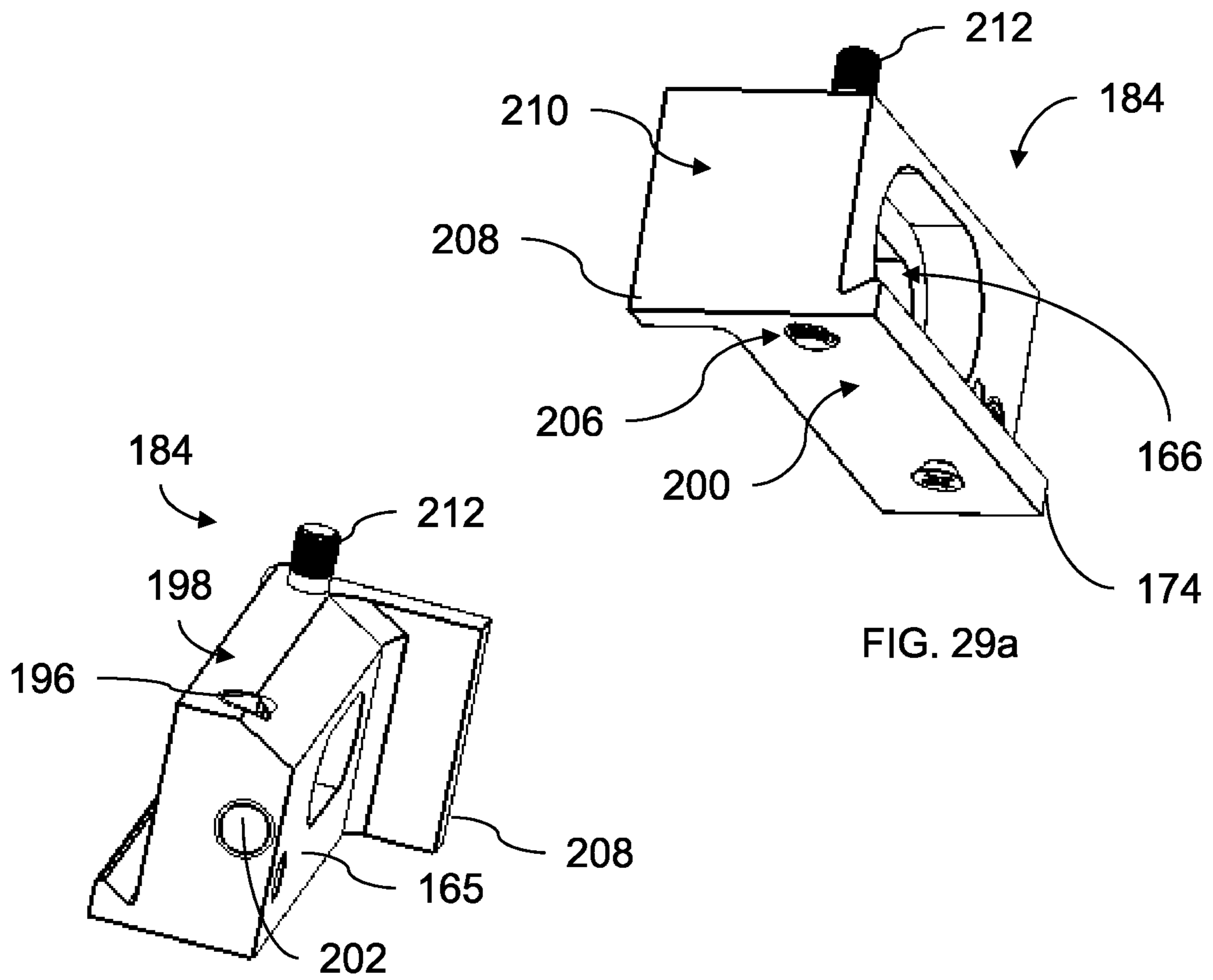


FIG. 29a

FIG. 29b

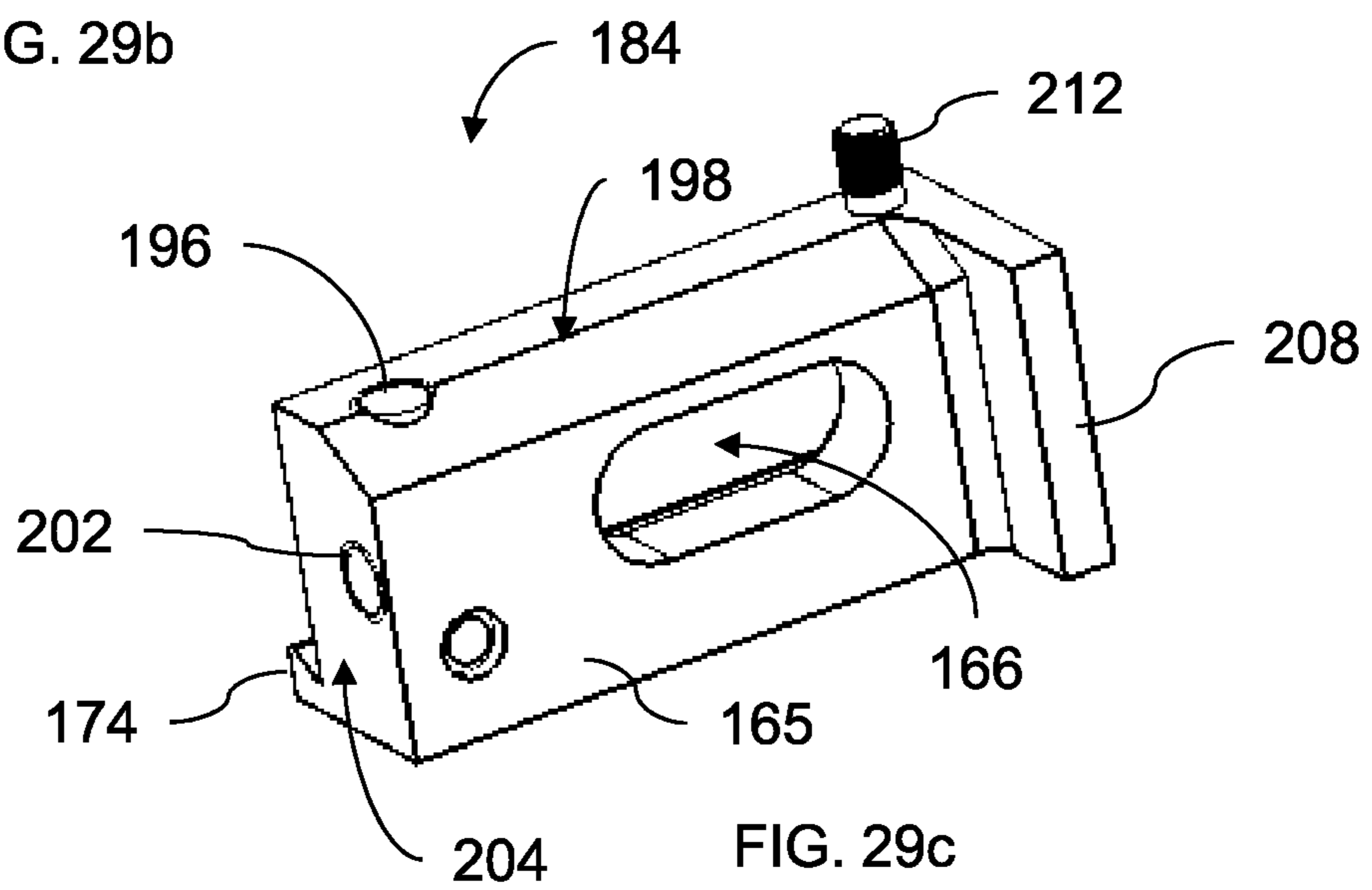
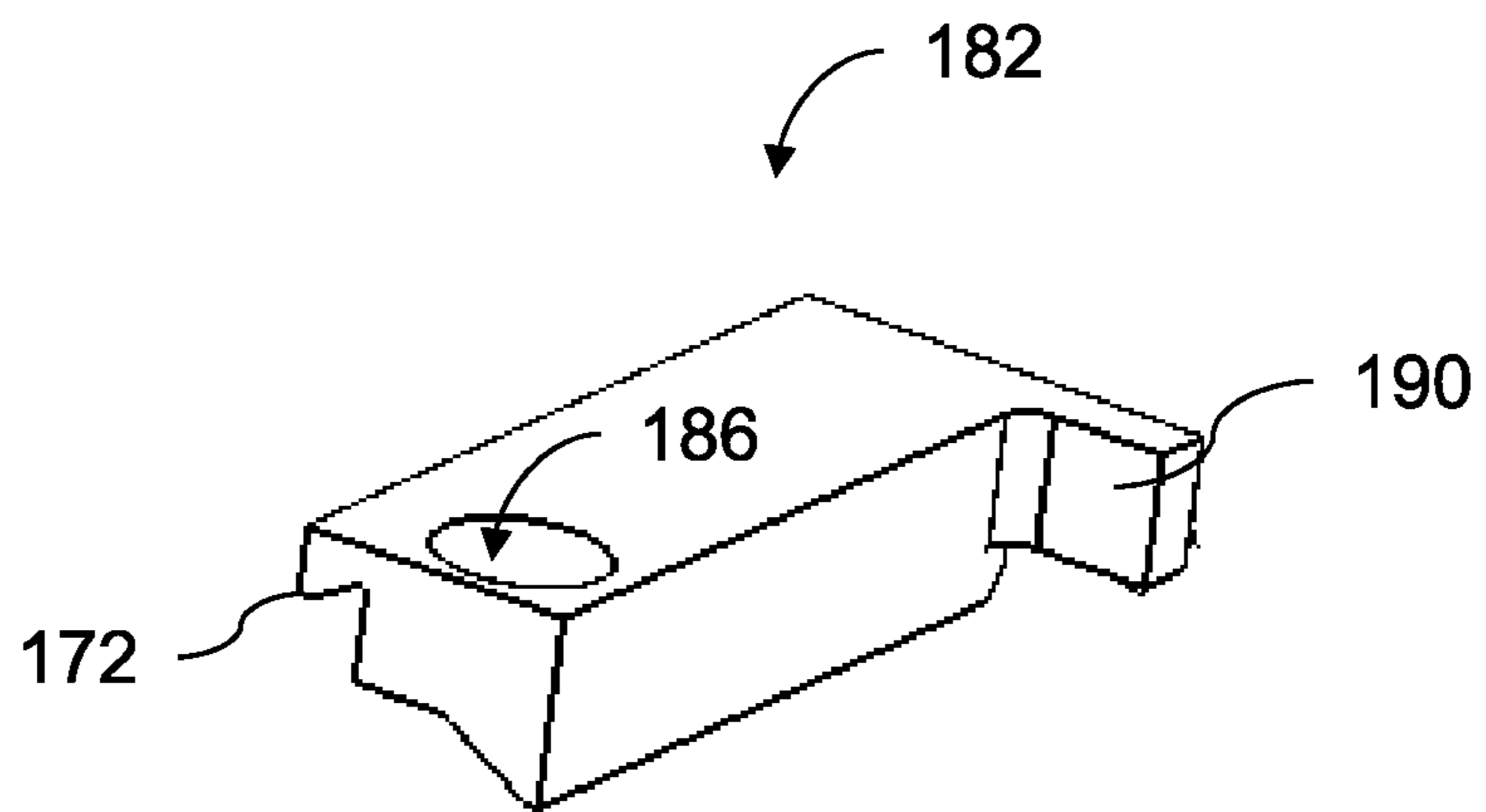
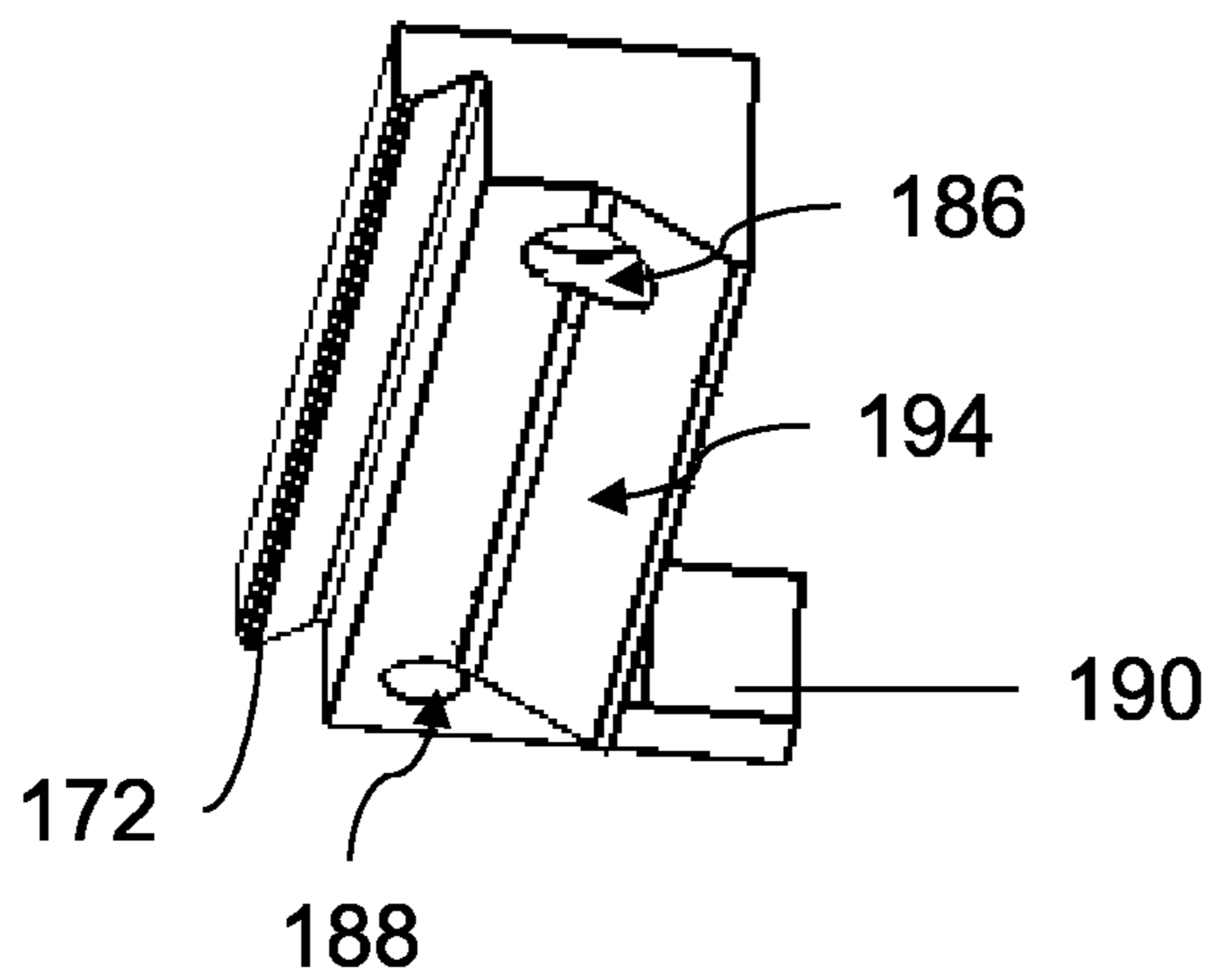
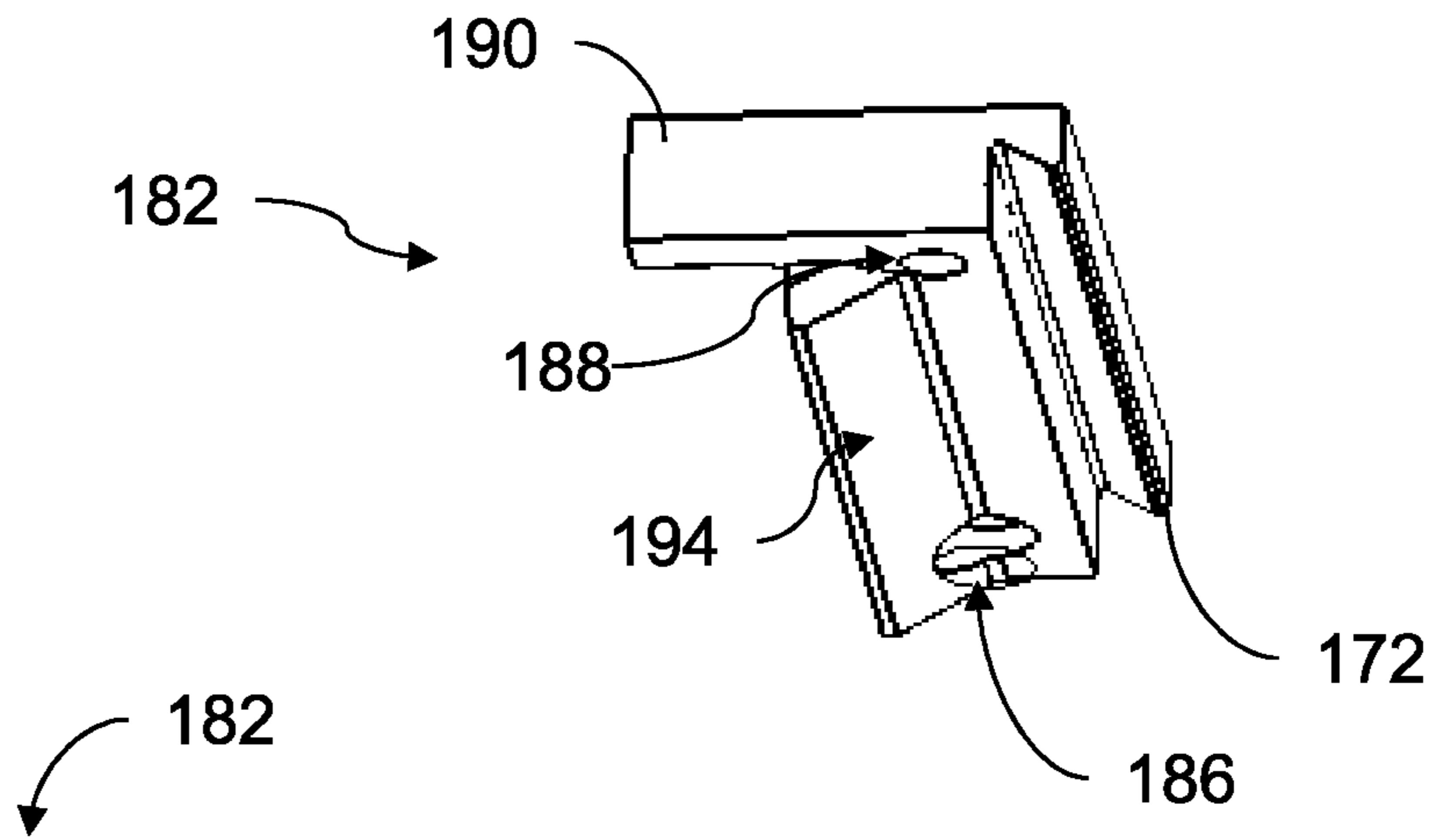


FIG. 29c



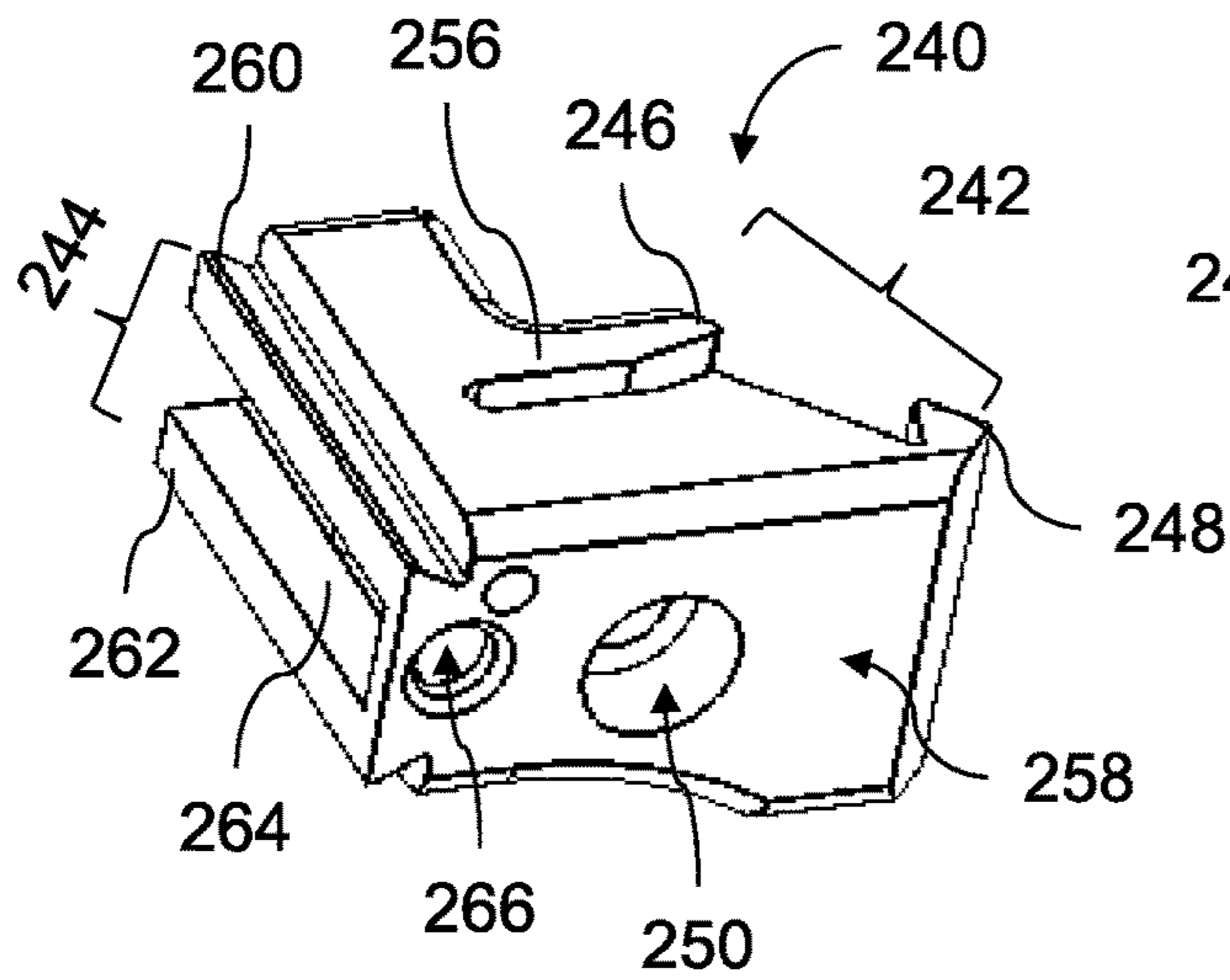


FIG. 31a

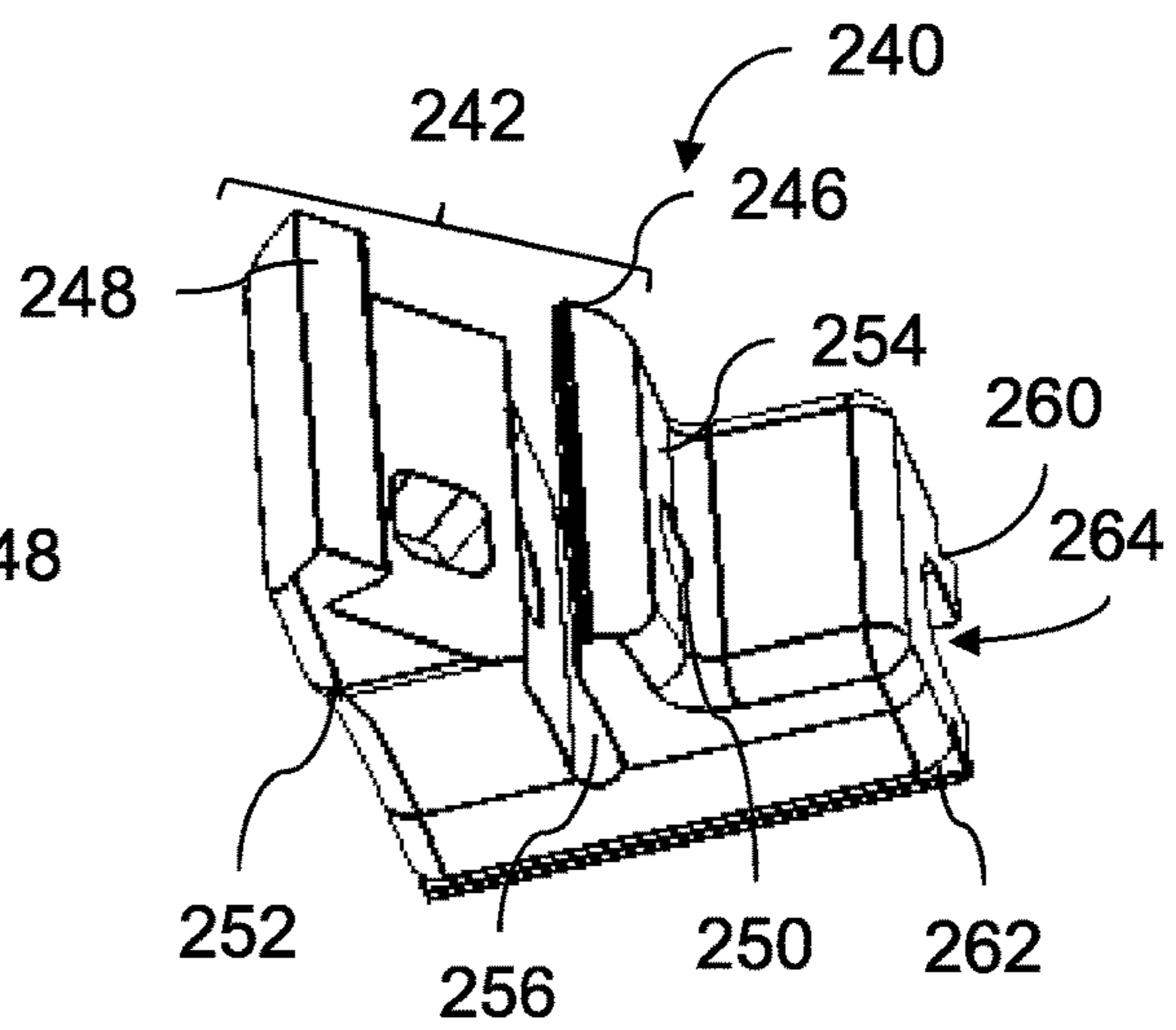


FIG. 31b

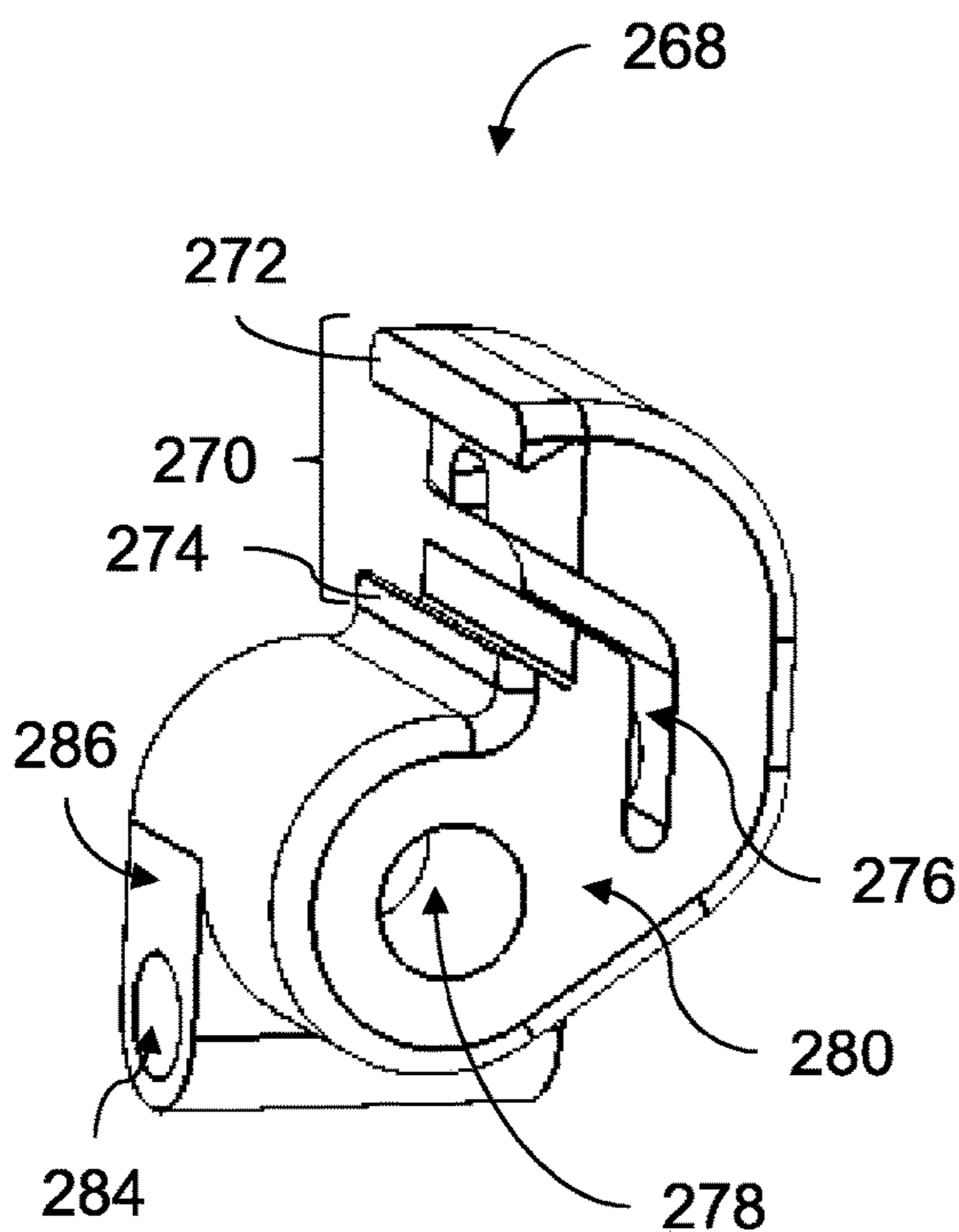


FIG. 32a

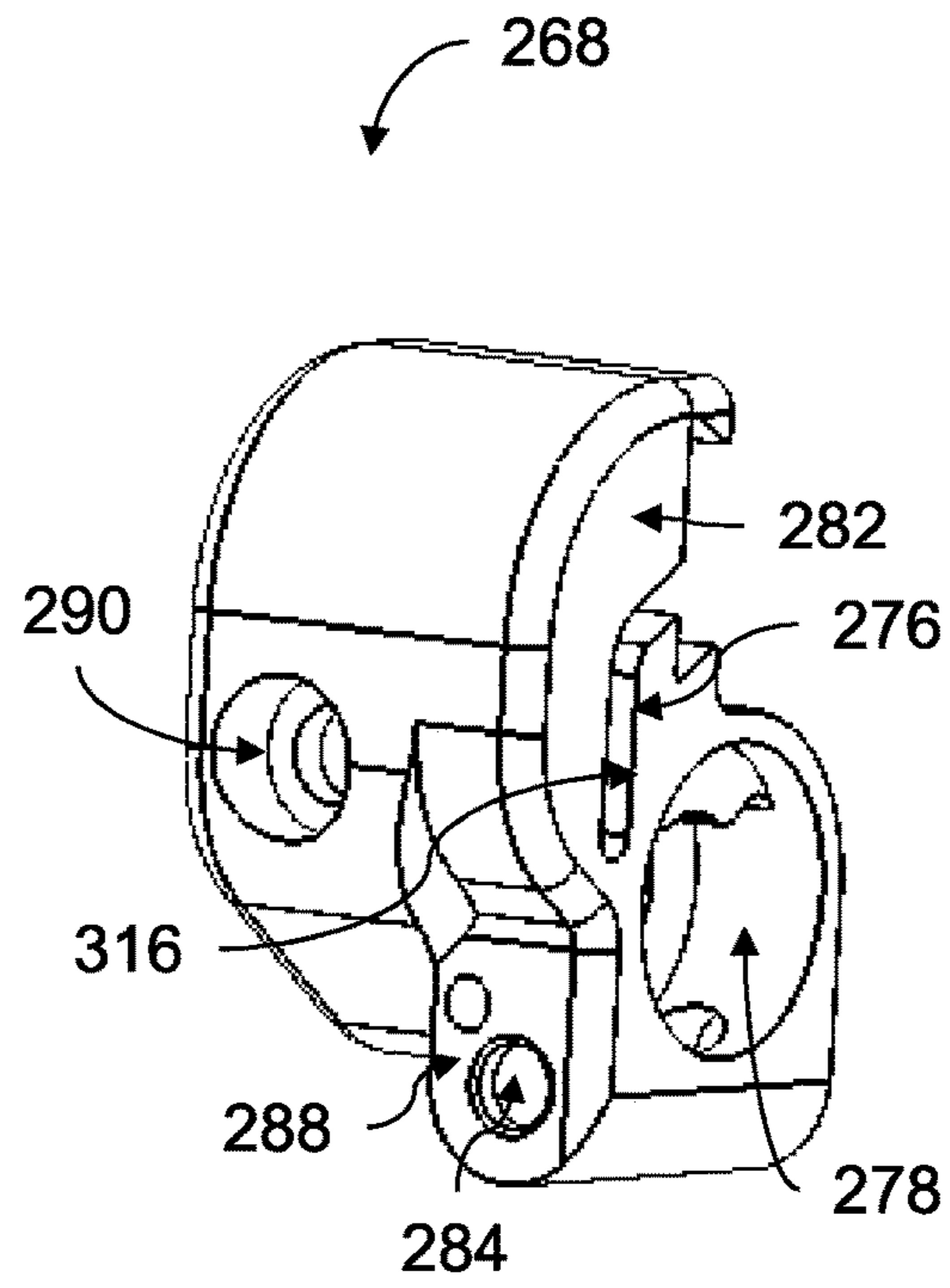


FIG. 32b

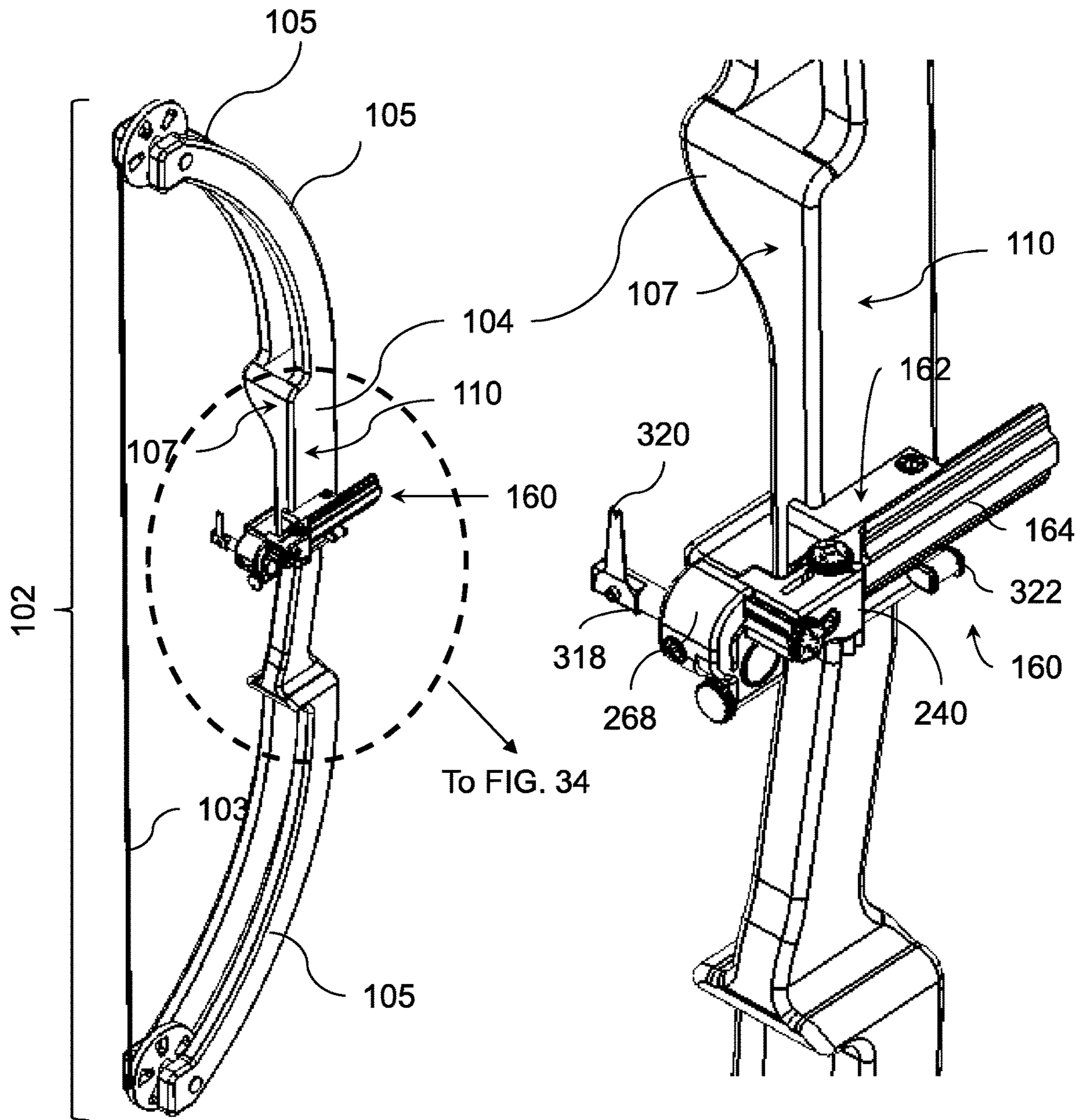


FIG. 33

FIG. 34

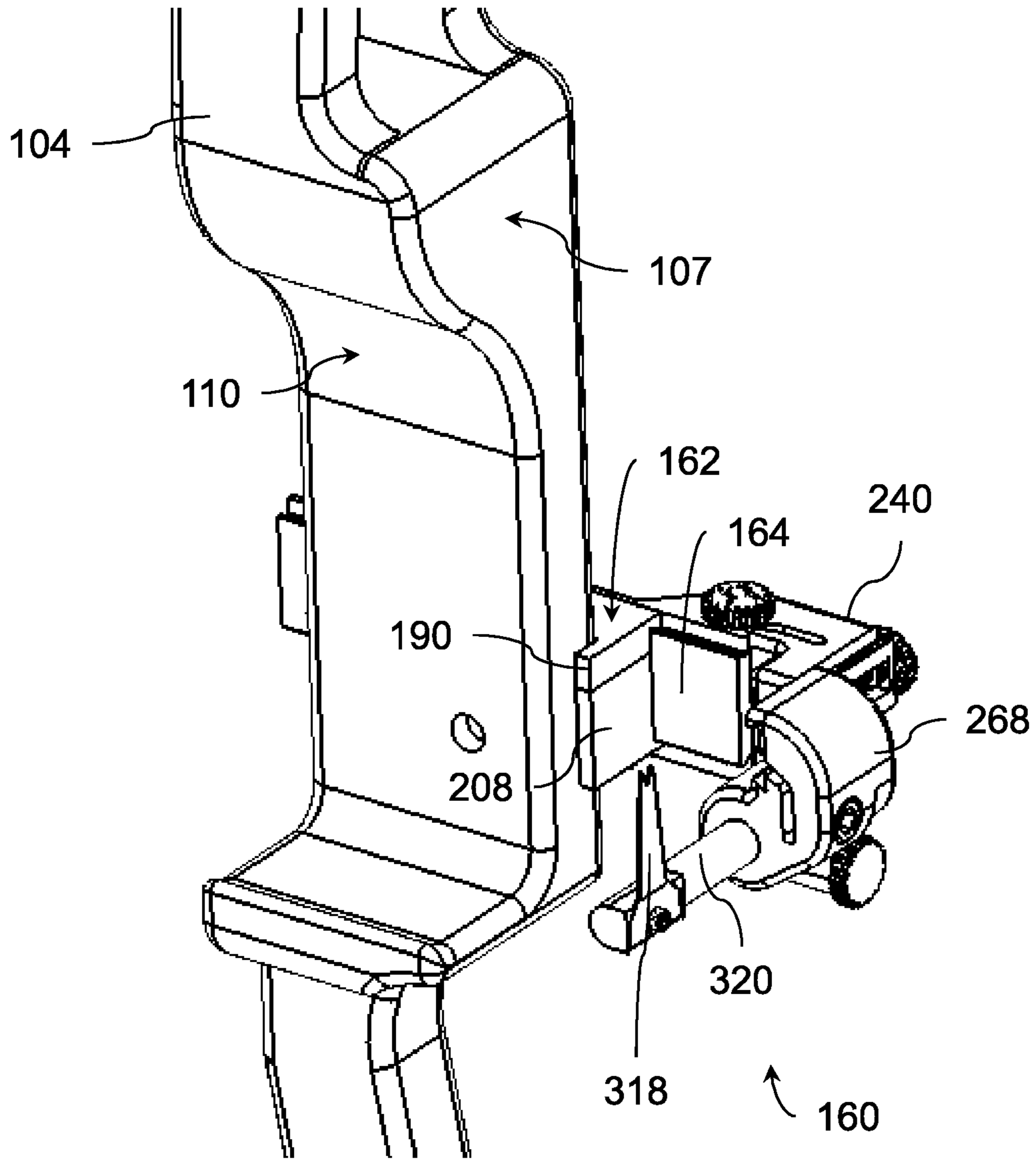
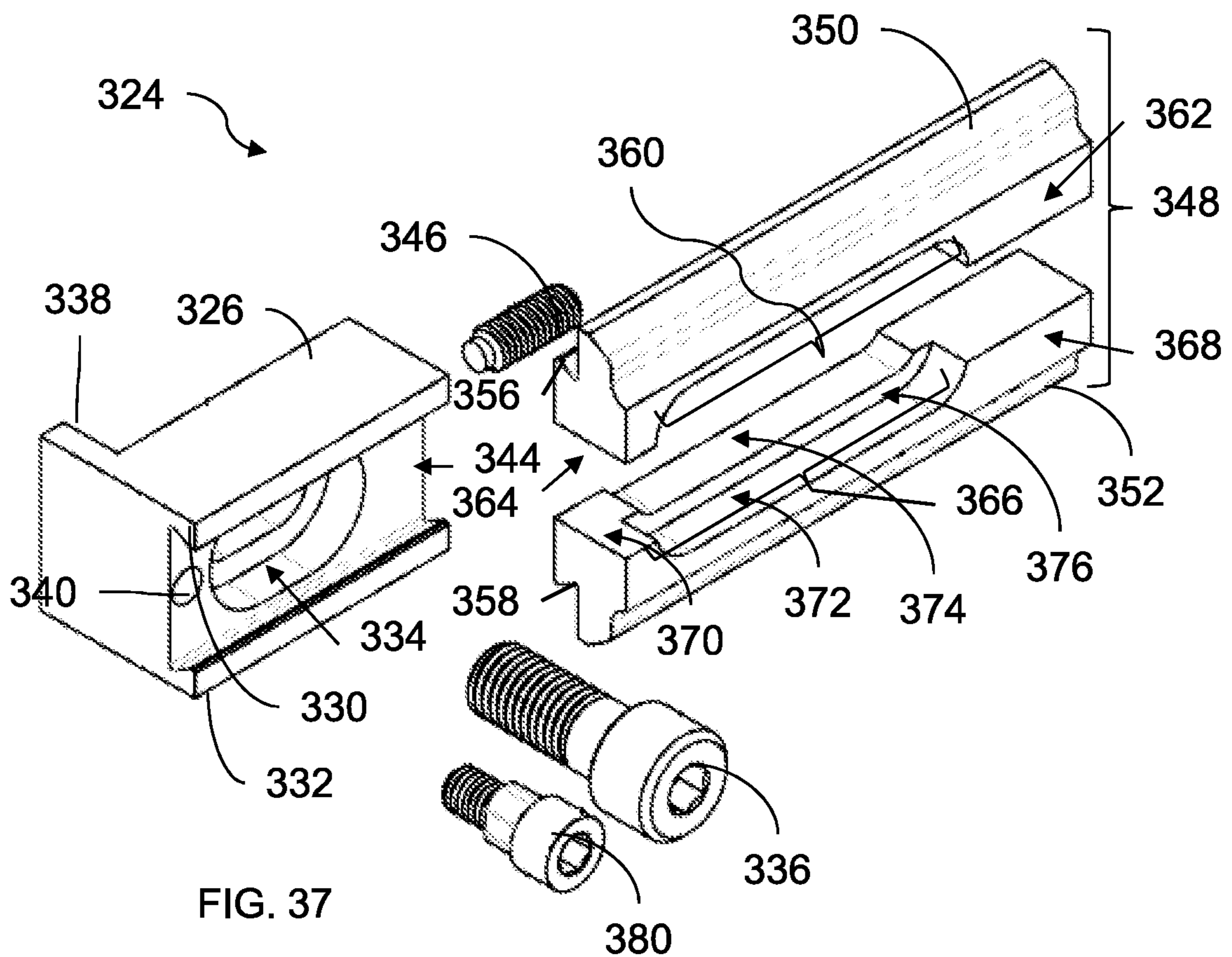
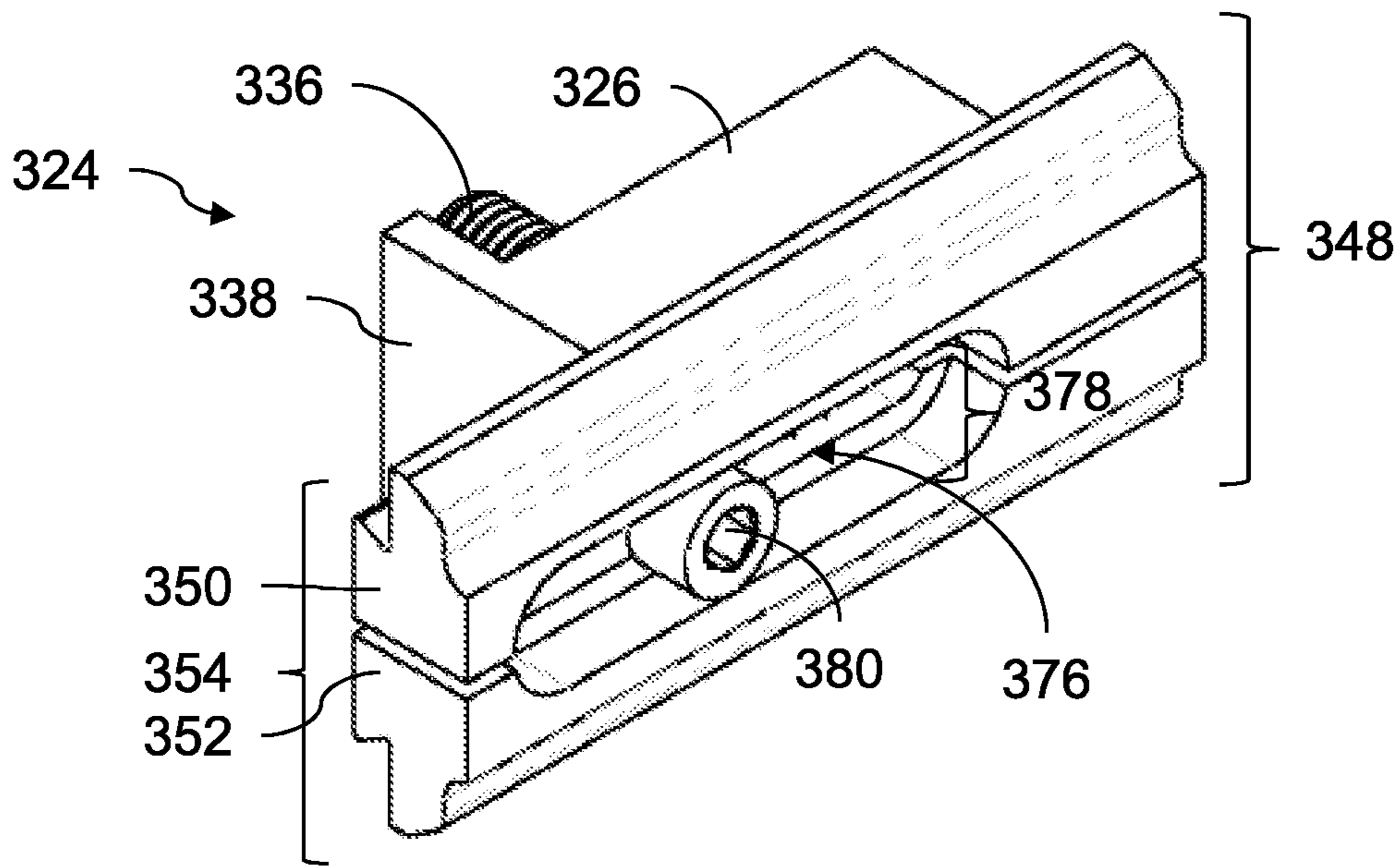


FIG. 35



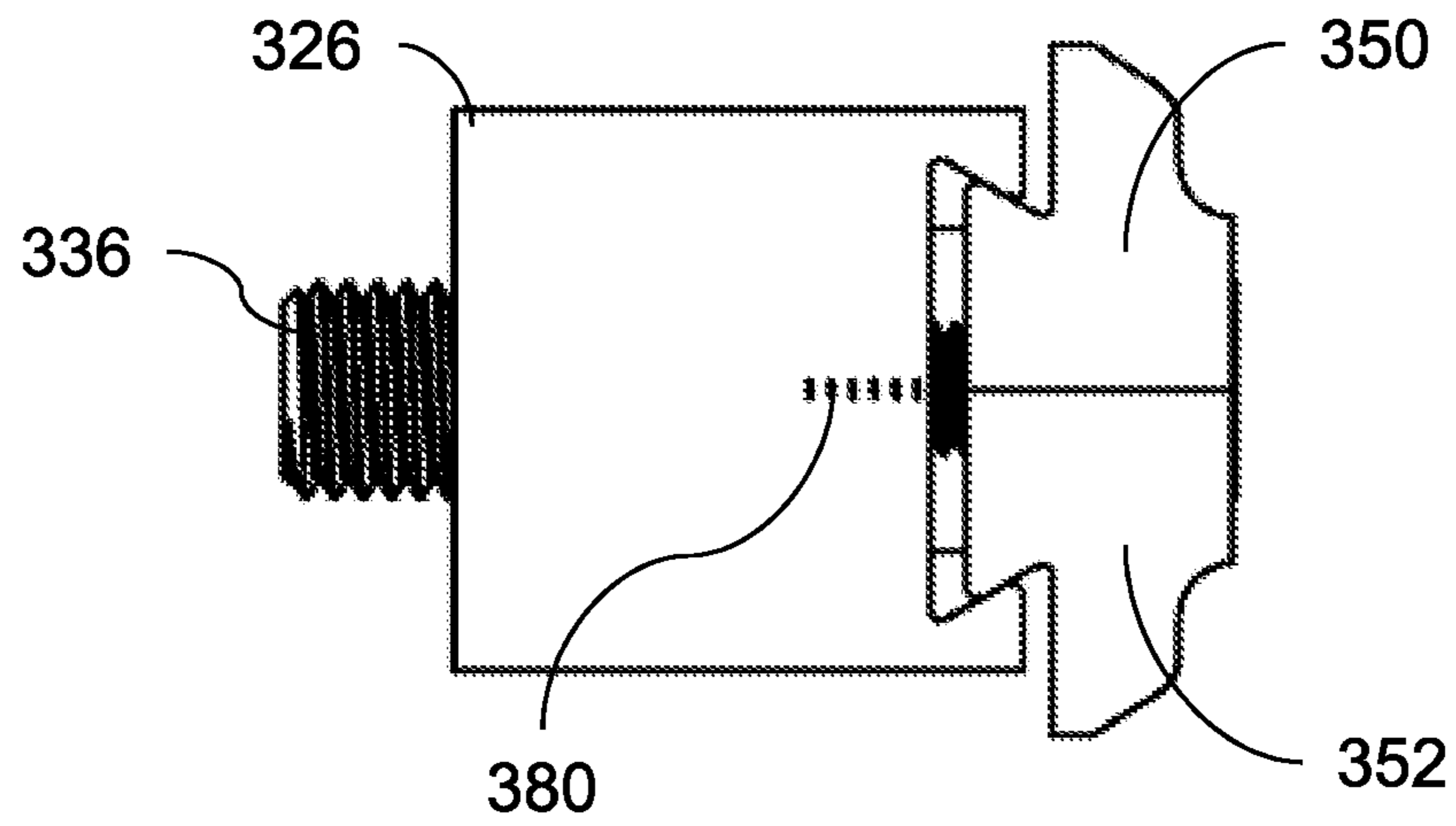


FIG. 38a

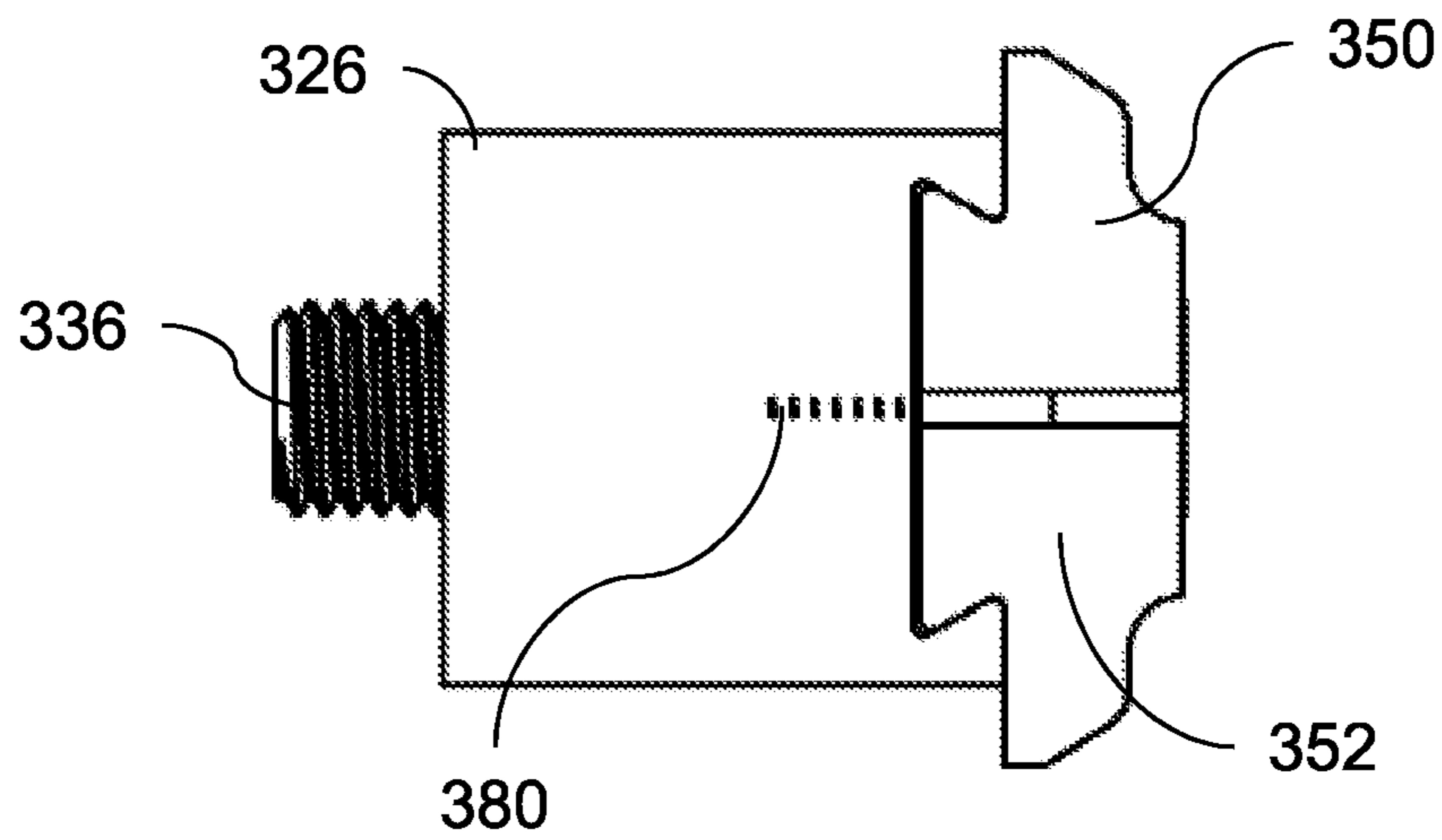
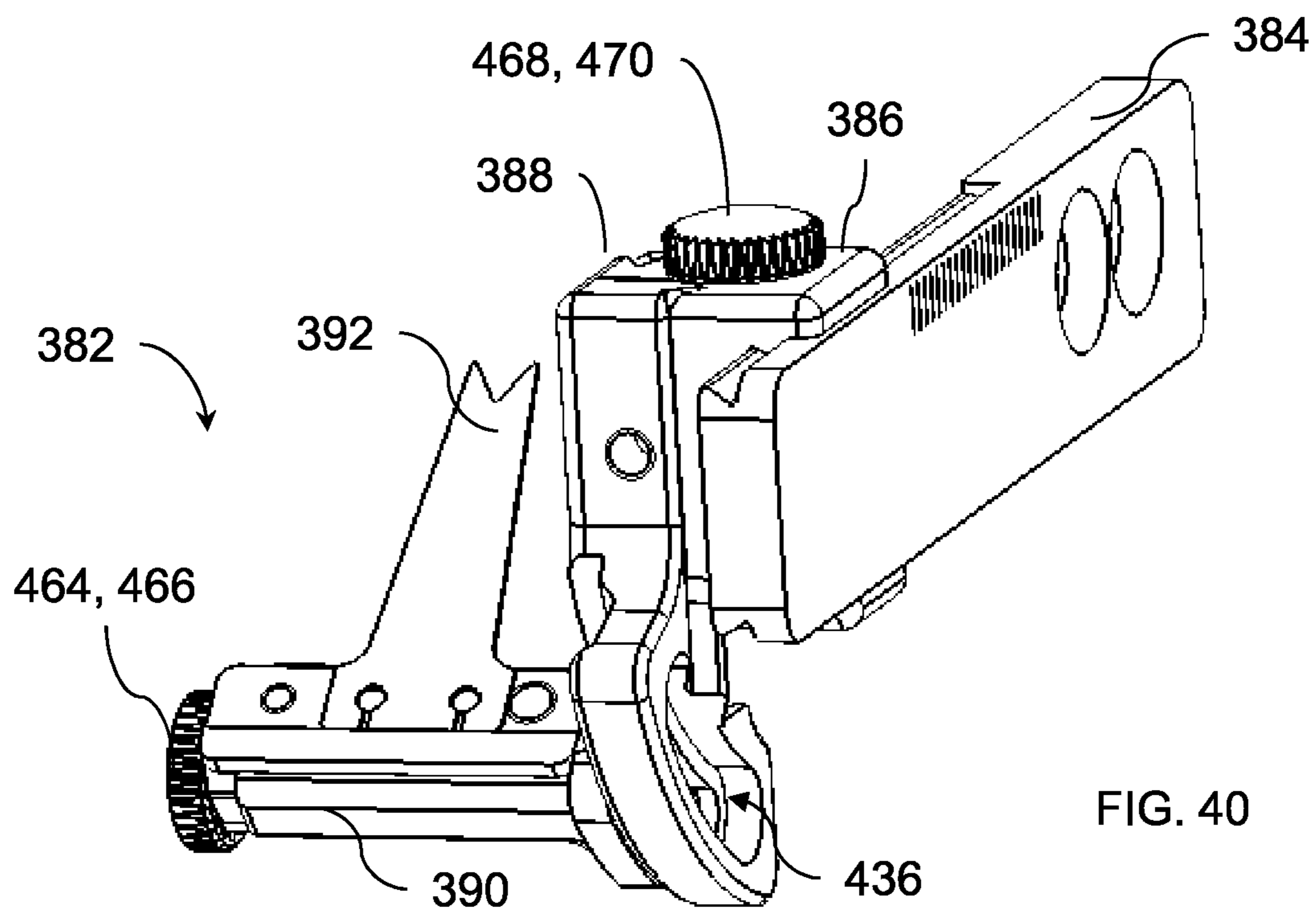
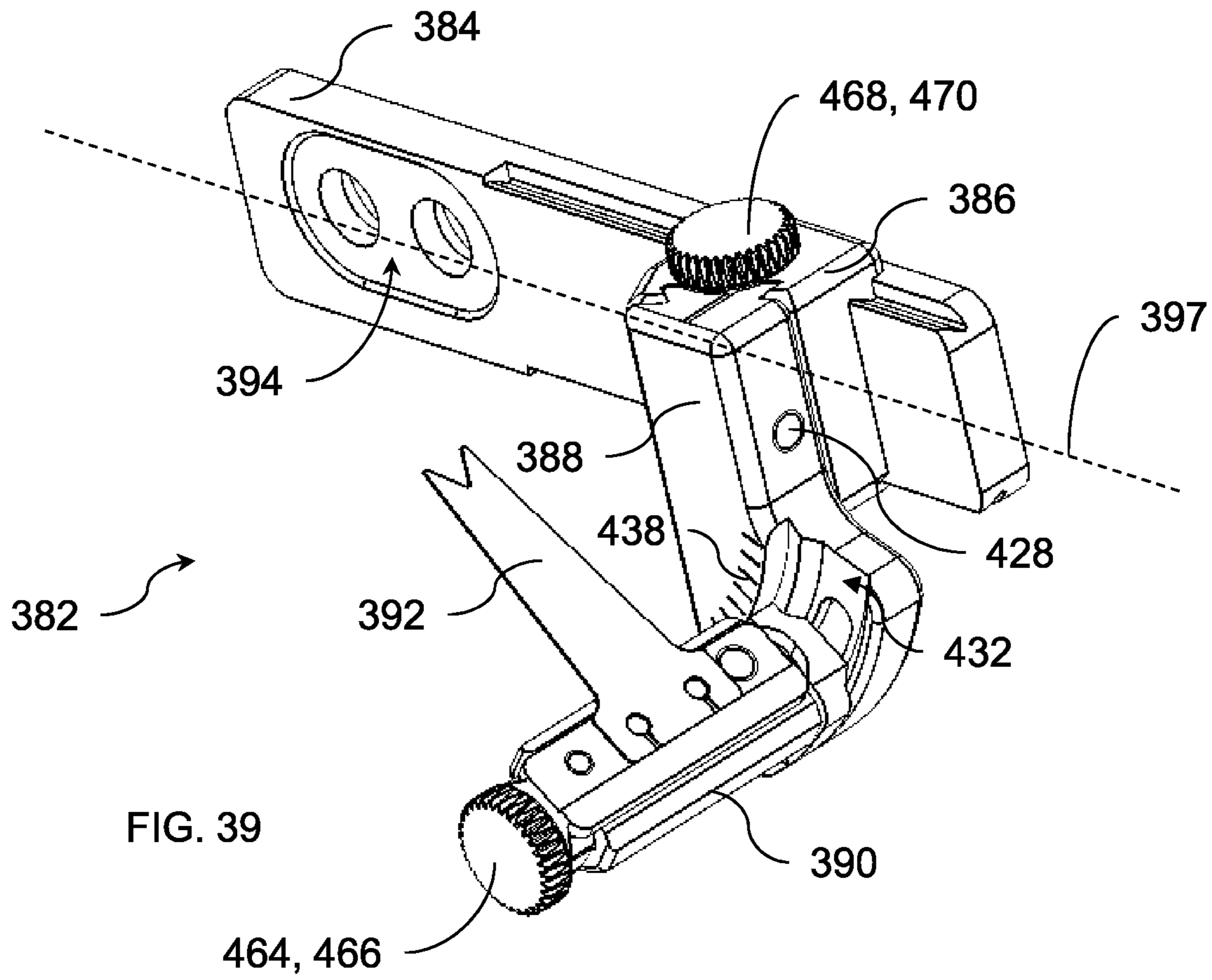


FIG. 38b





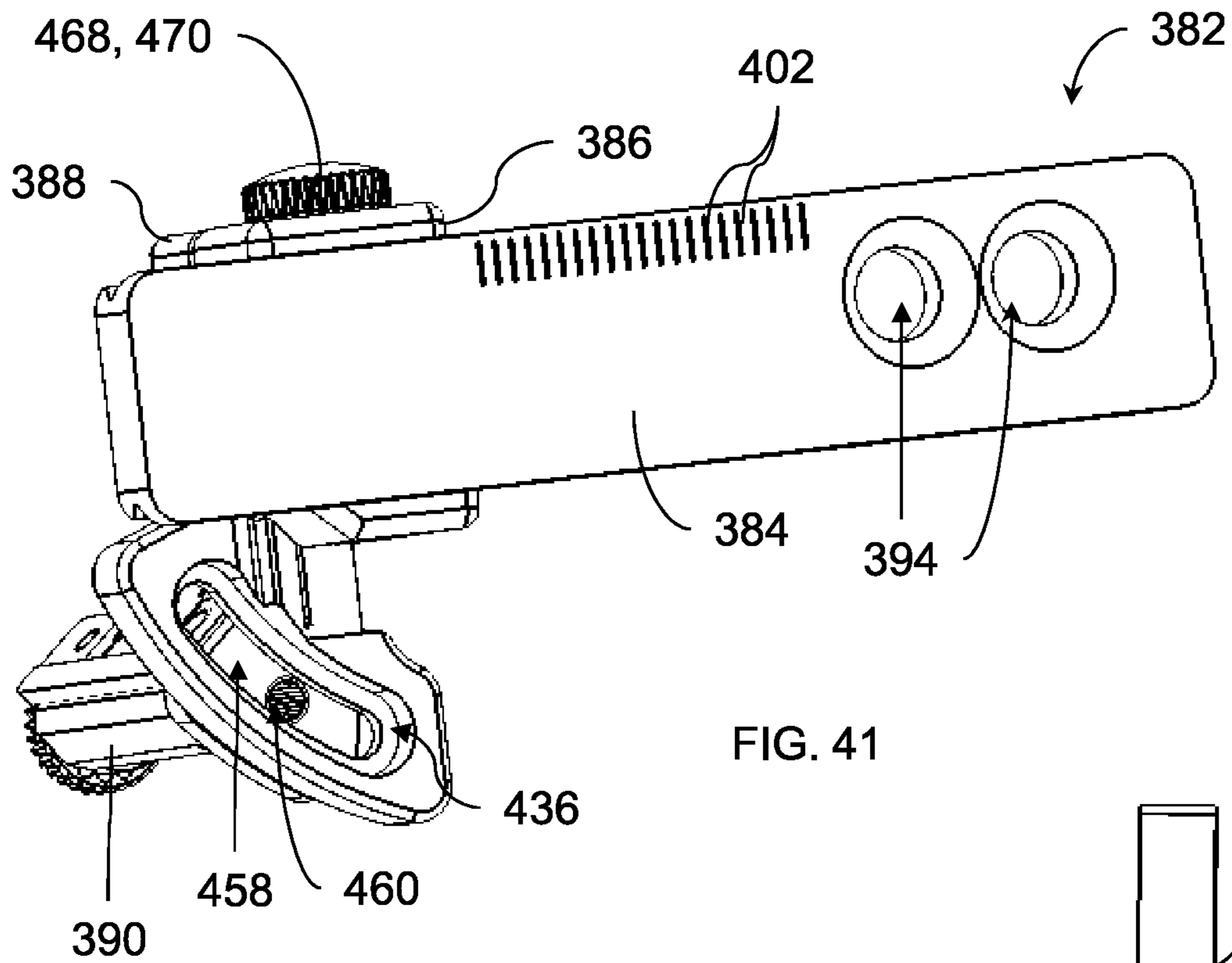


FIG. 41

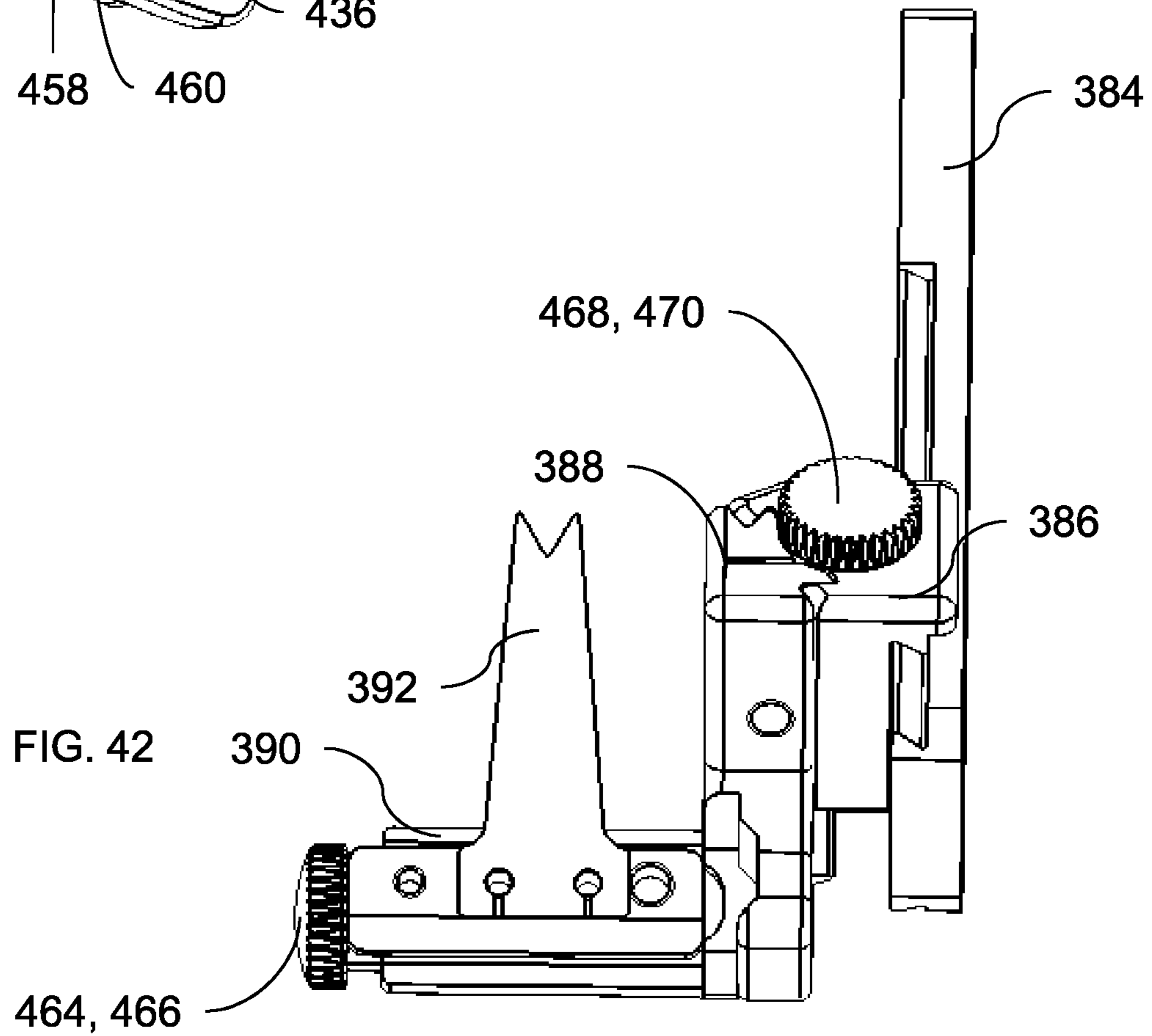
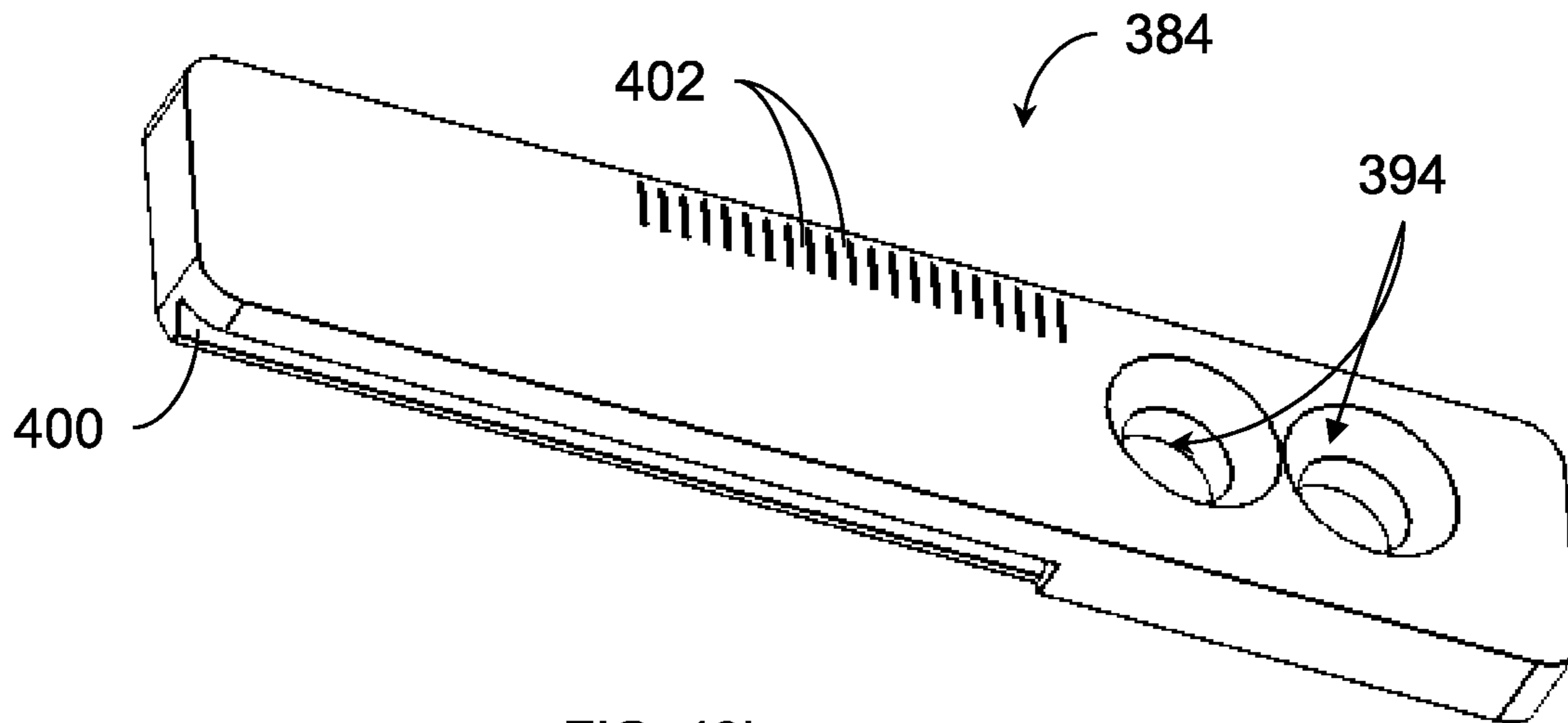
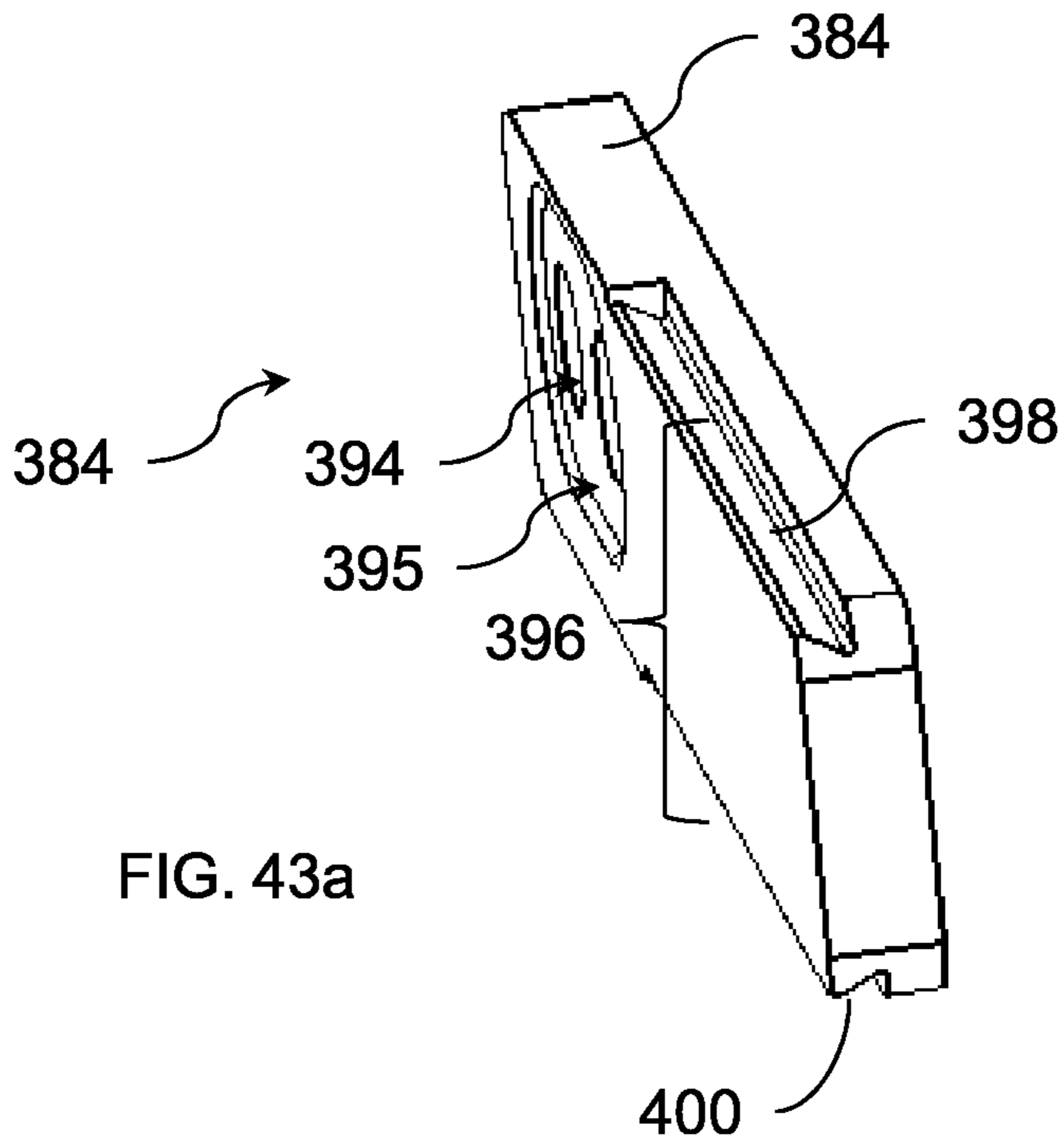


FIG. 42



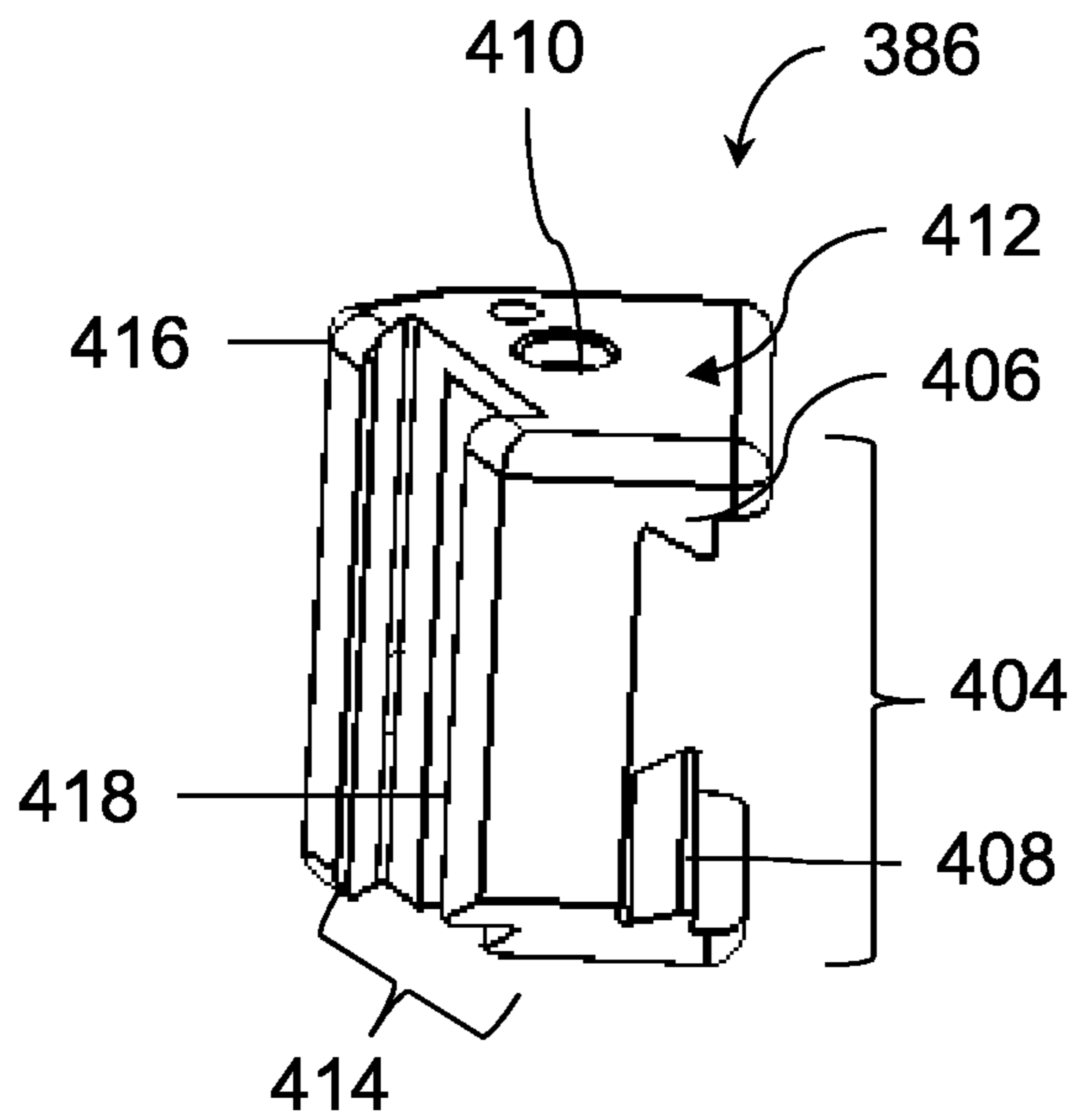


FIG. 44a

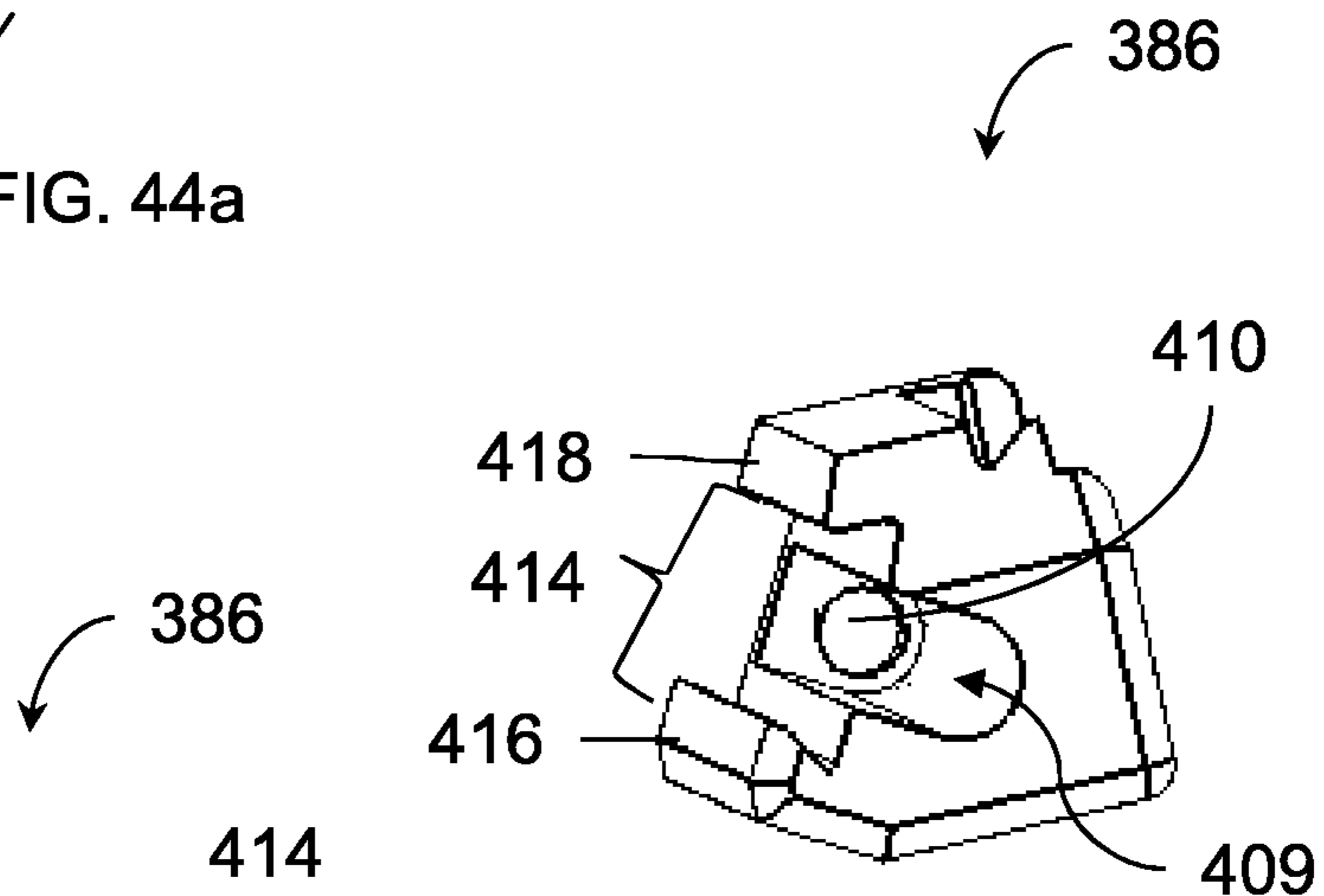


FIG. 44b

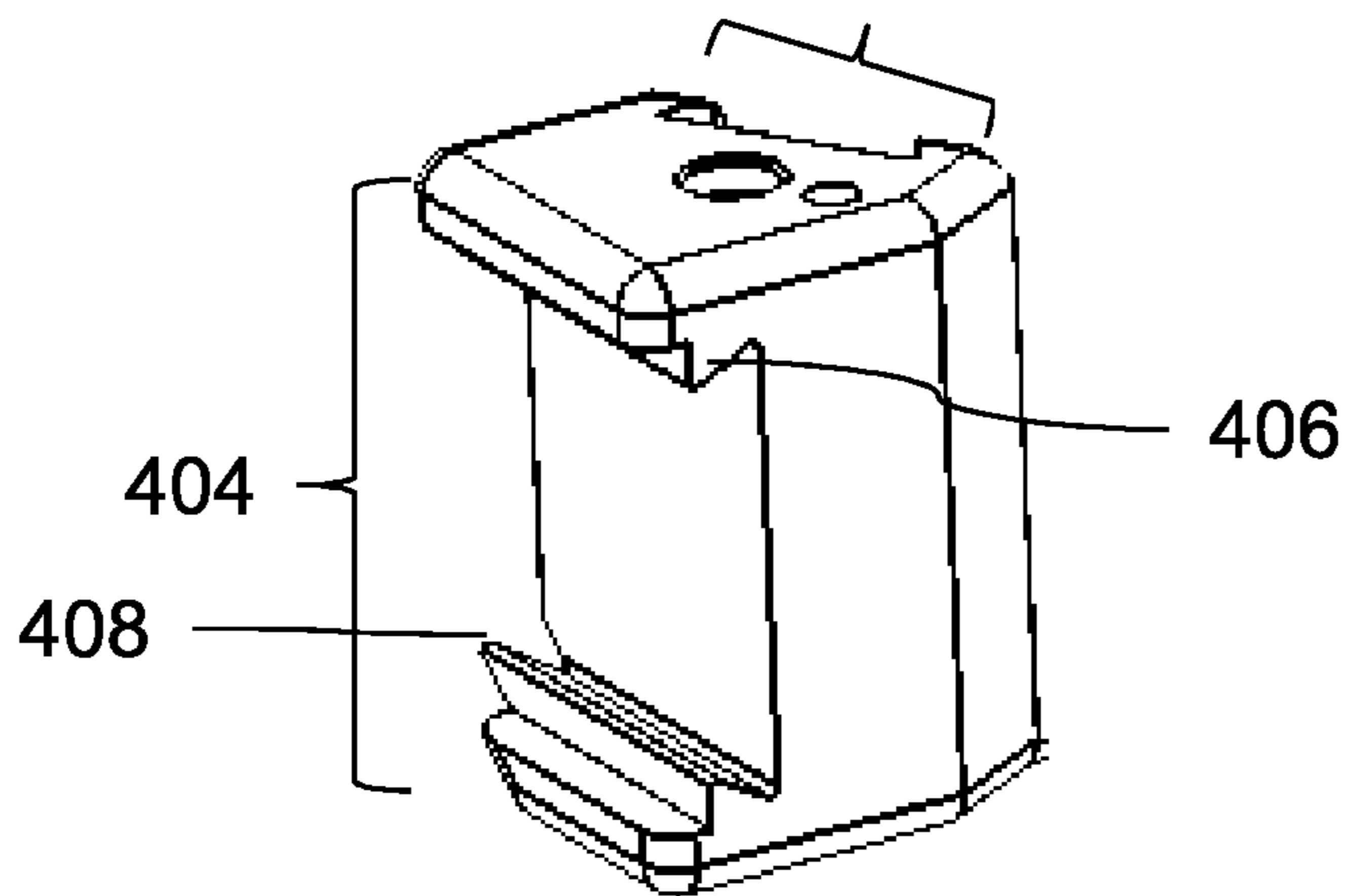


FIG. 44c

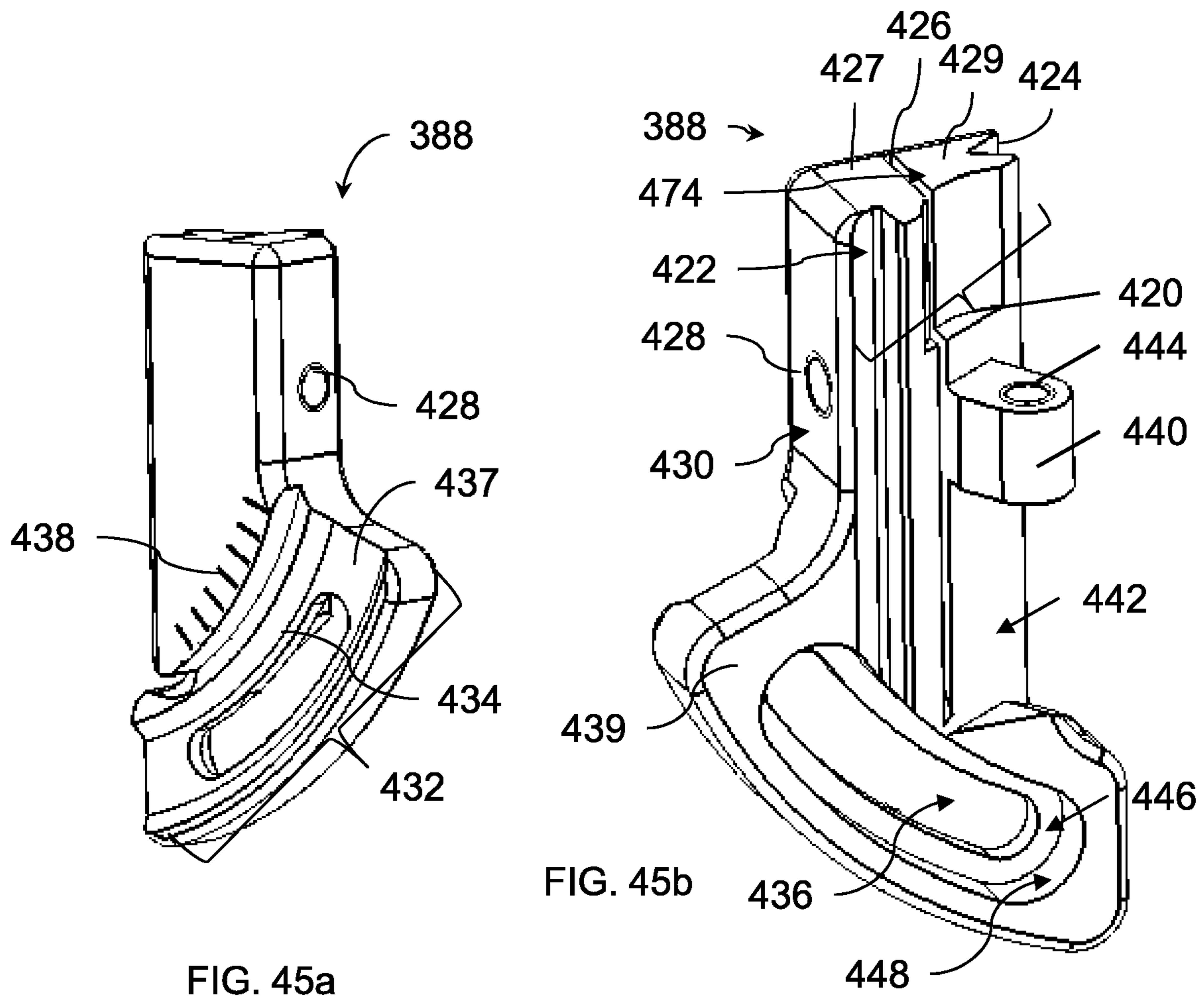


FIG. 45a

FIG. 45b

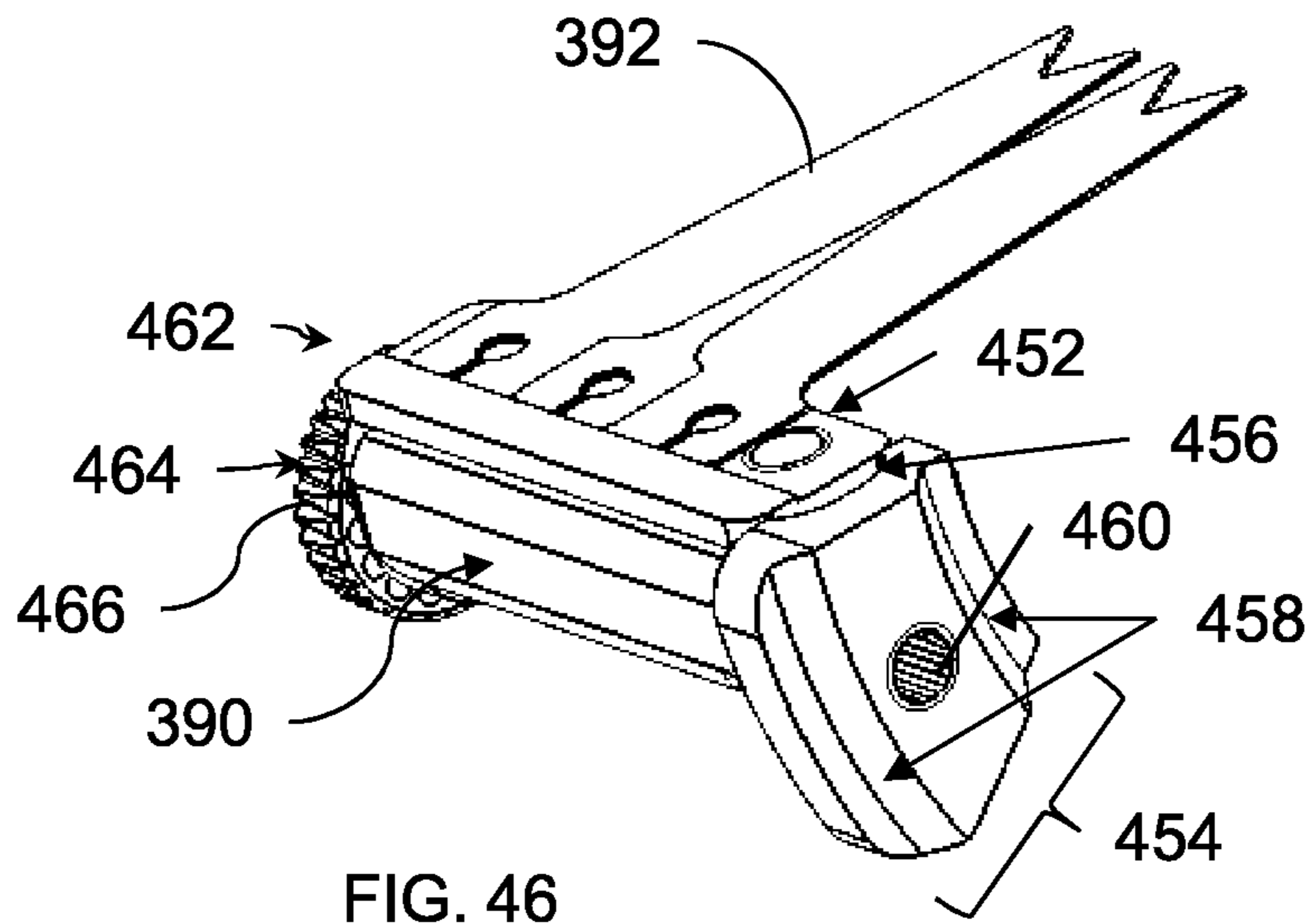
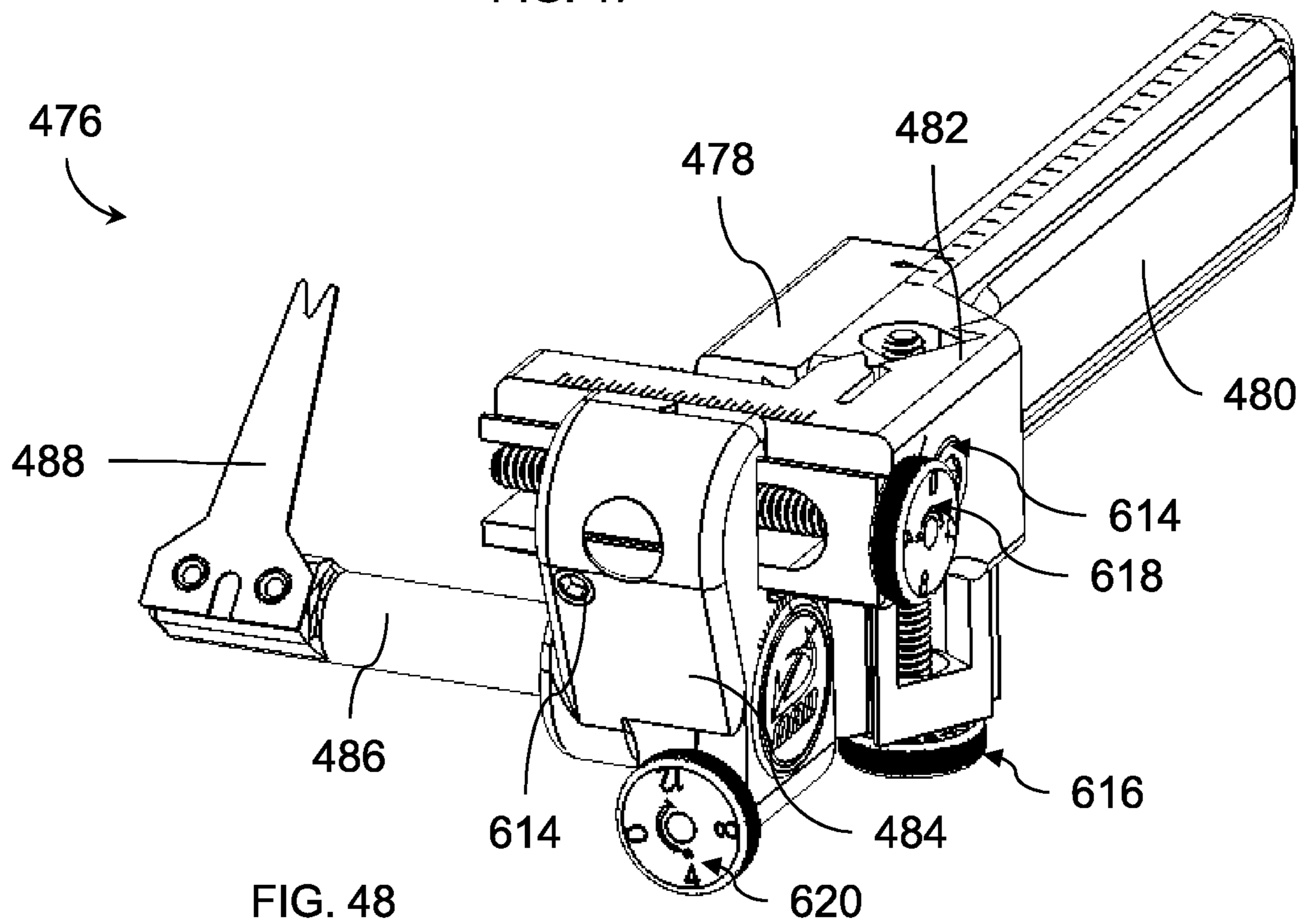
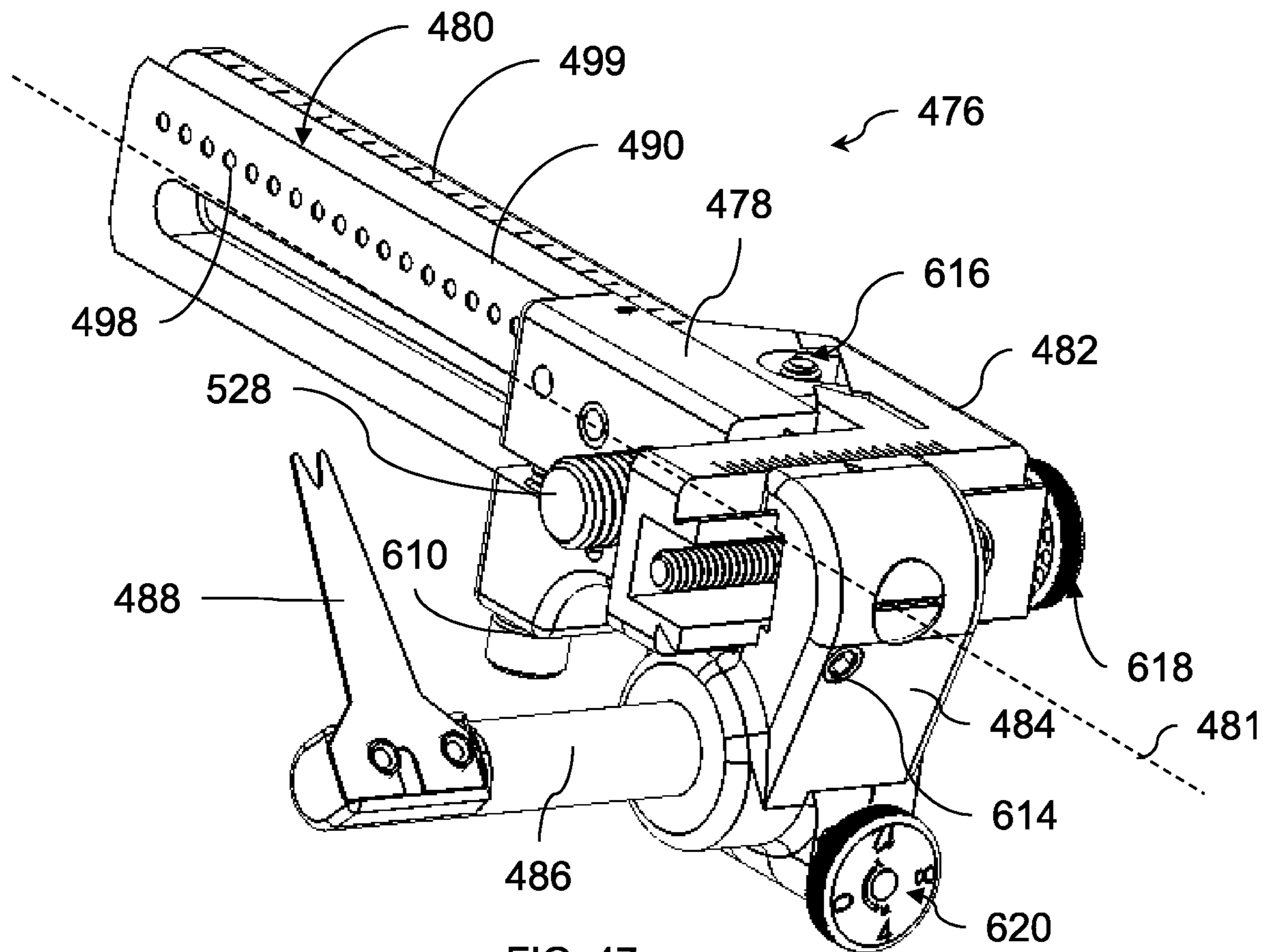
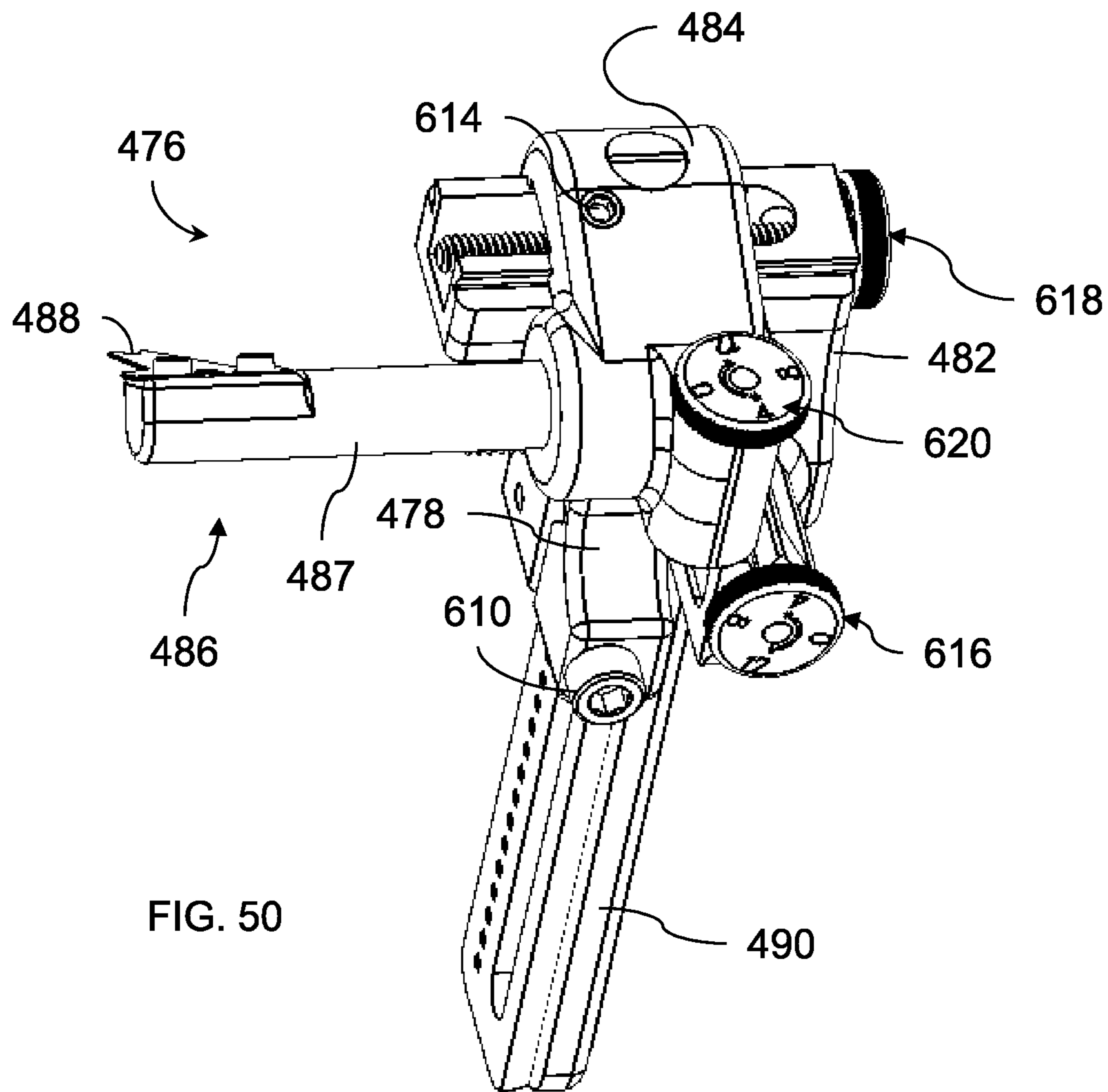
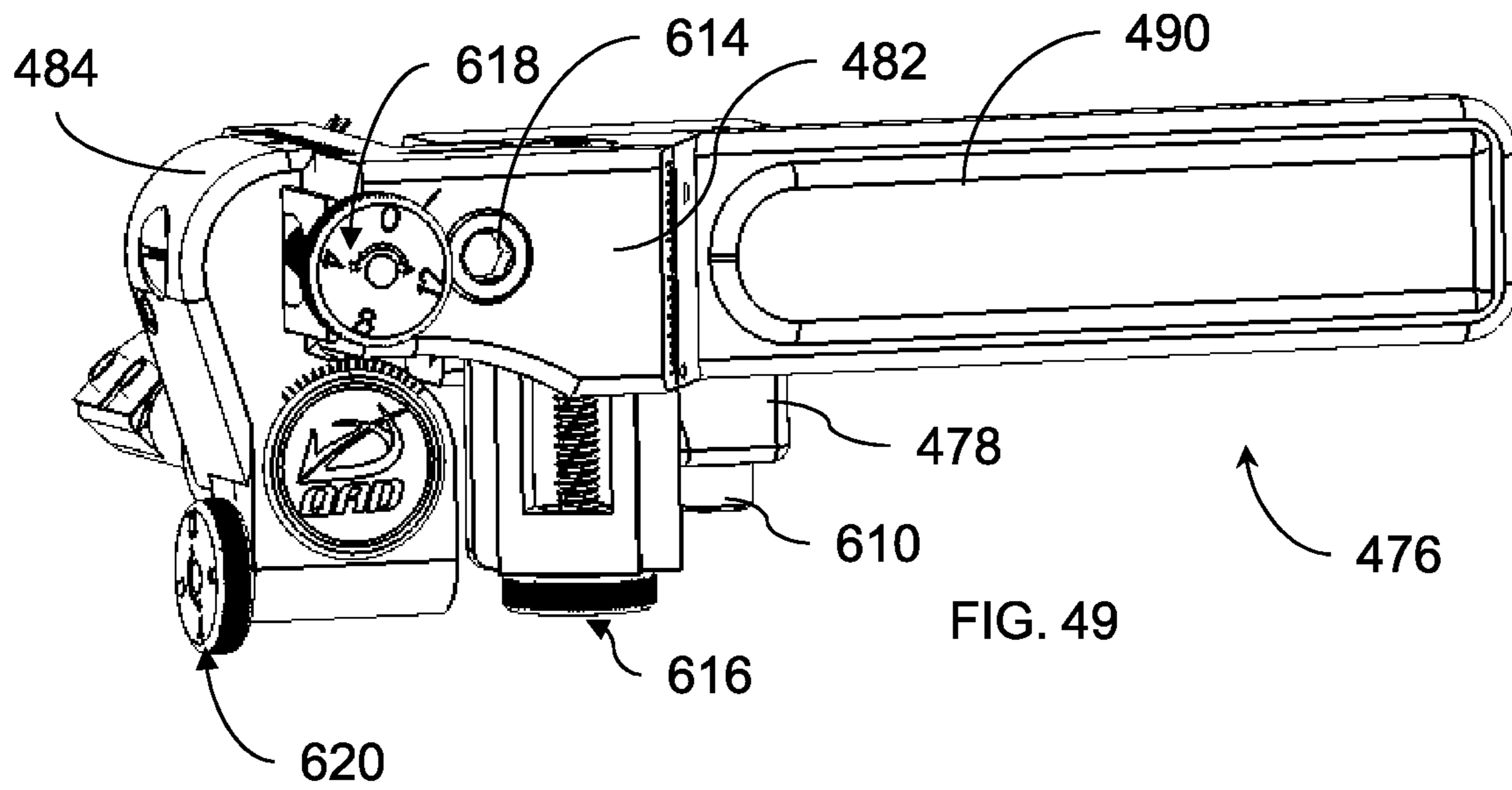
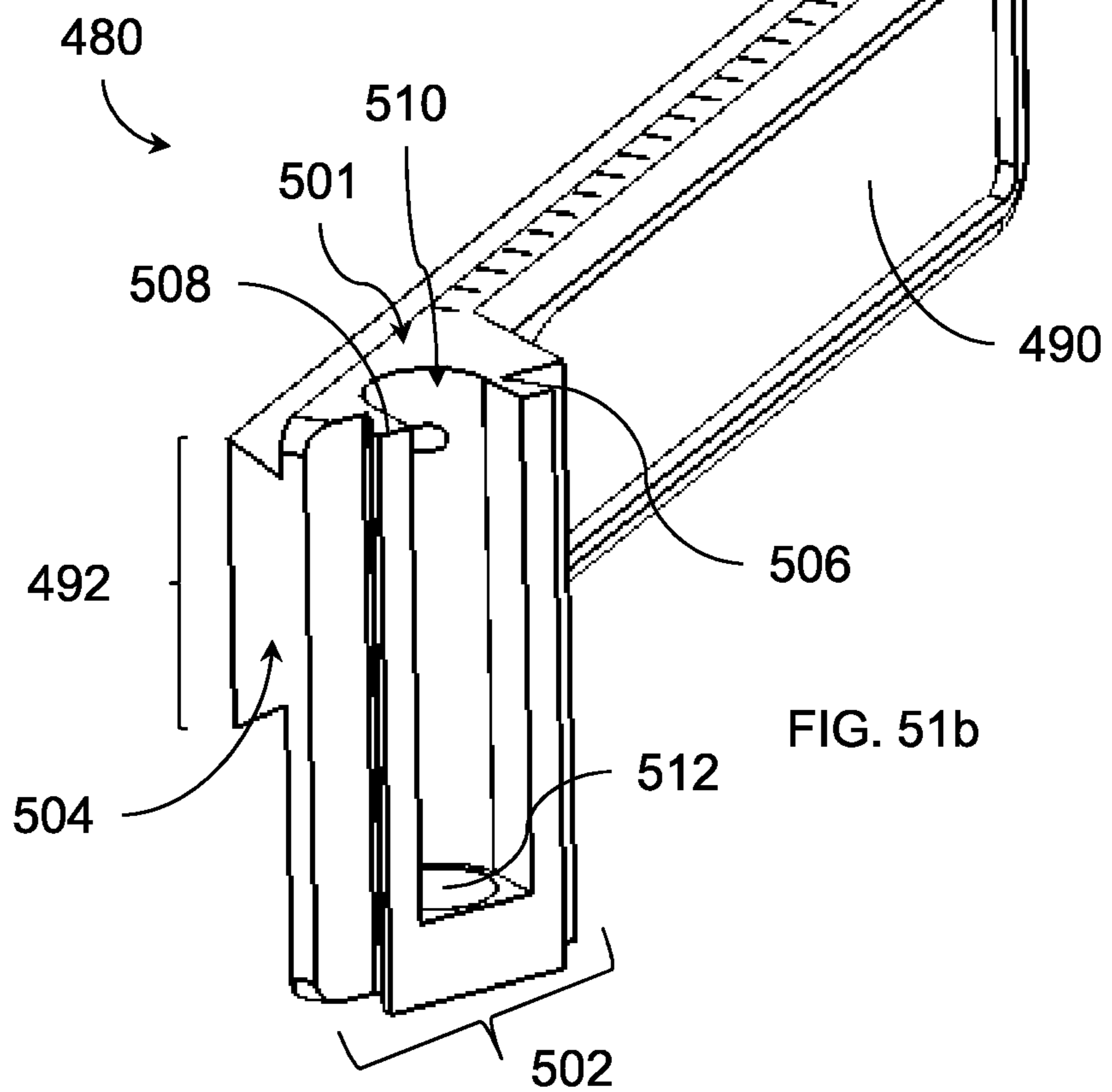
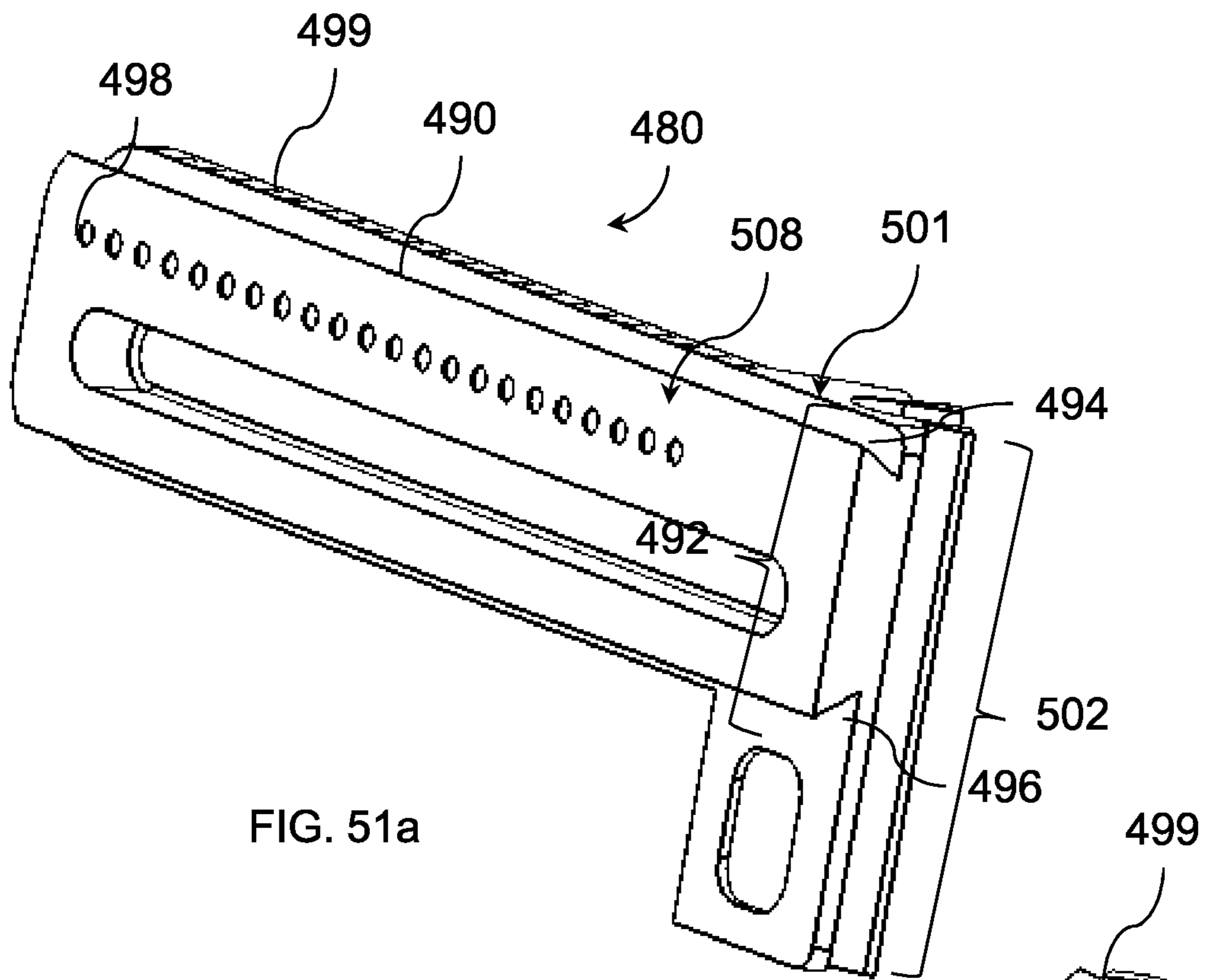


FIG. 46







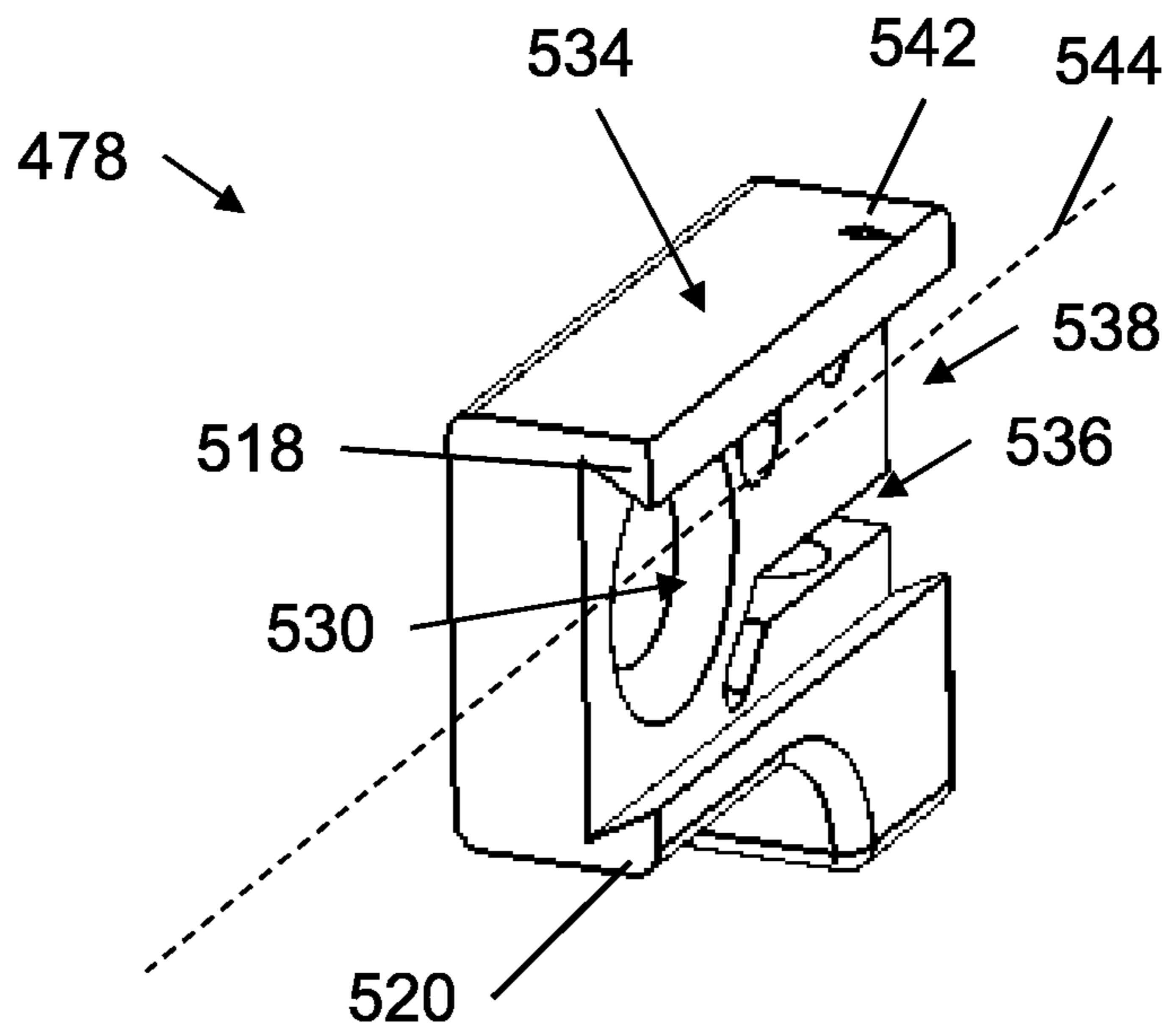


FIG. 52a

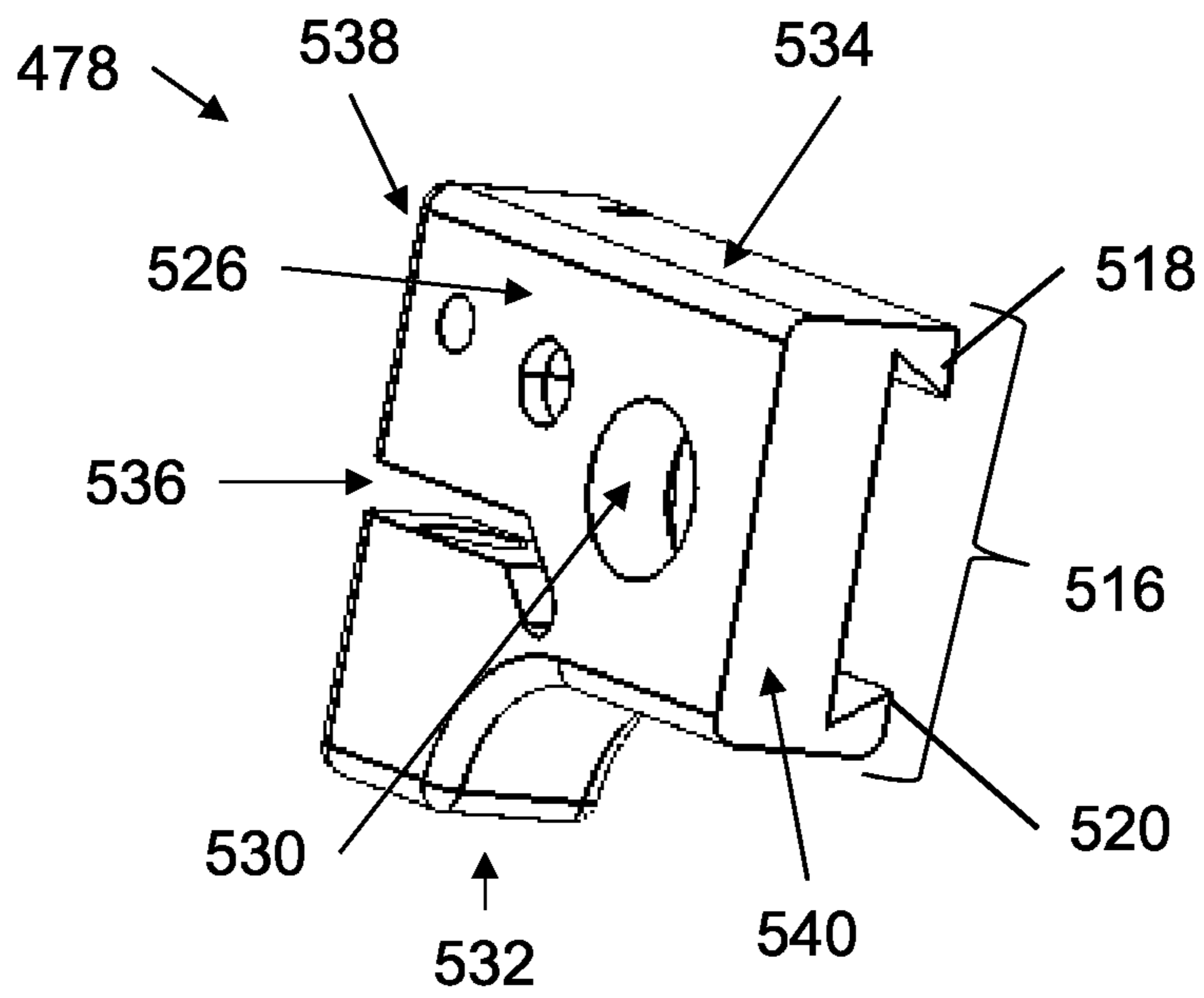


FIG. 52b



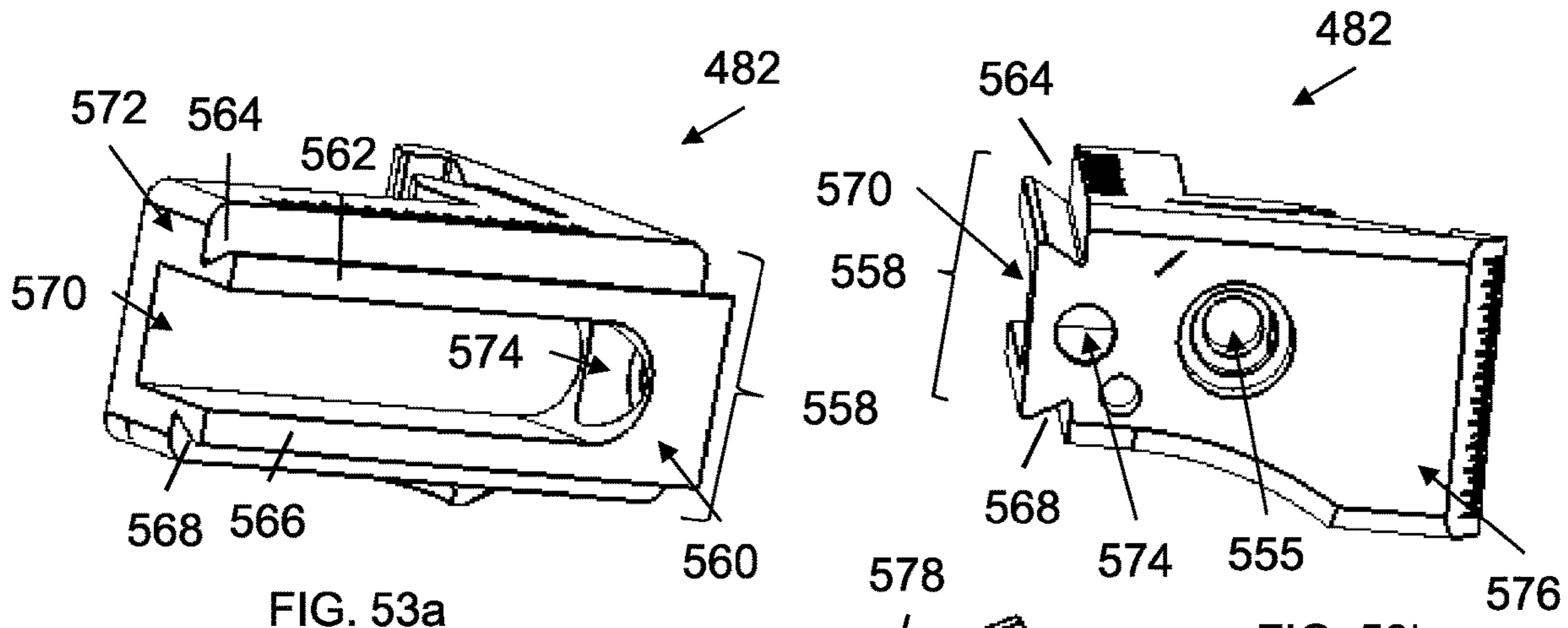


FIG. 53a

FIG. 53b

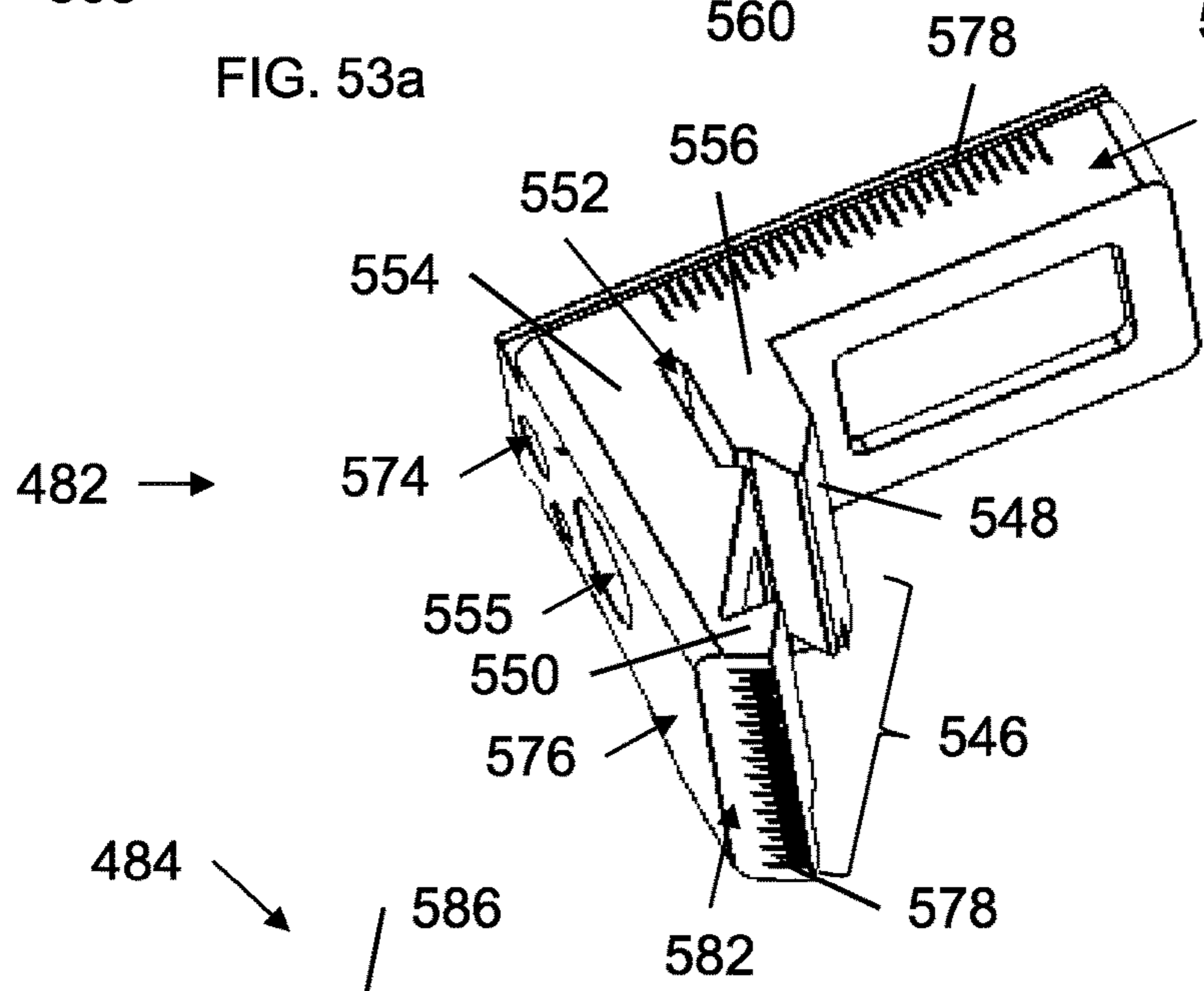


FIG. 53c

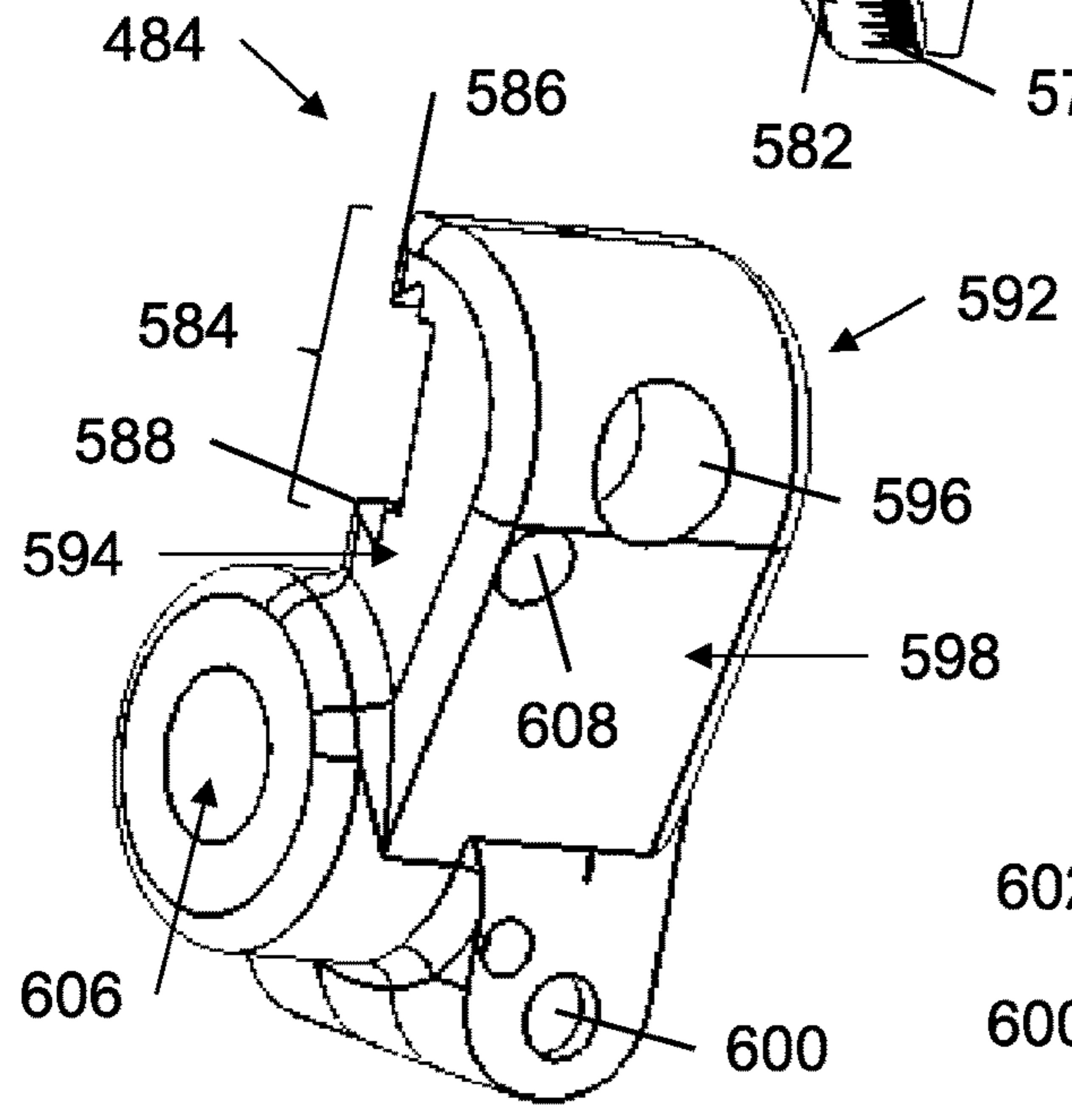


FIG. 54a

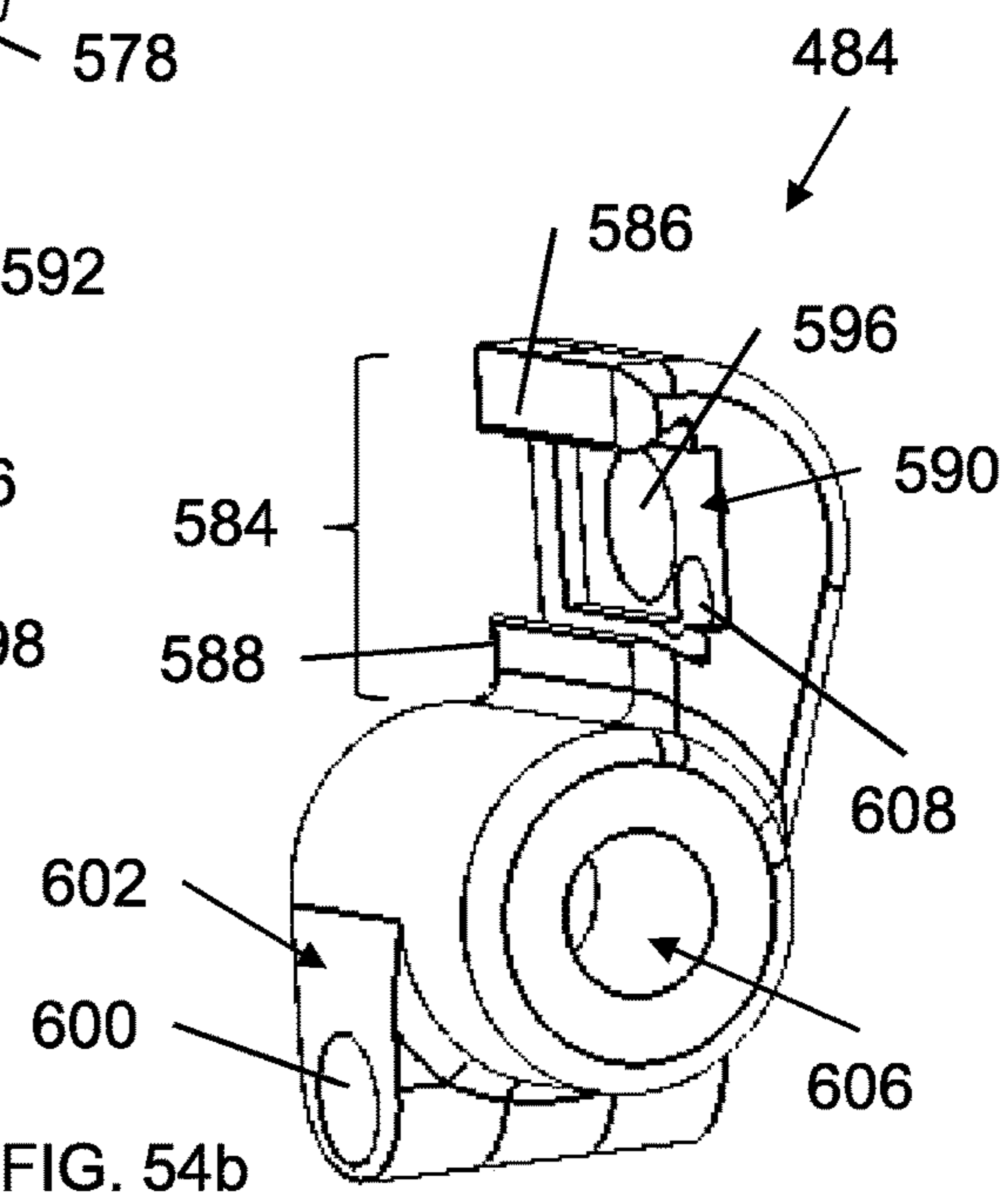
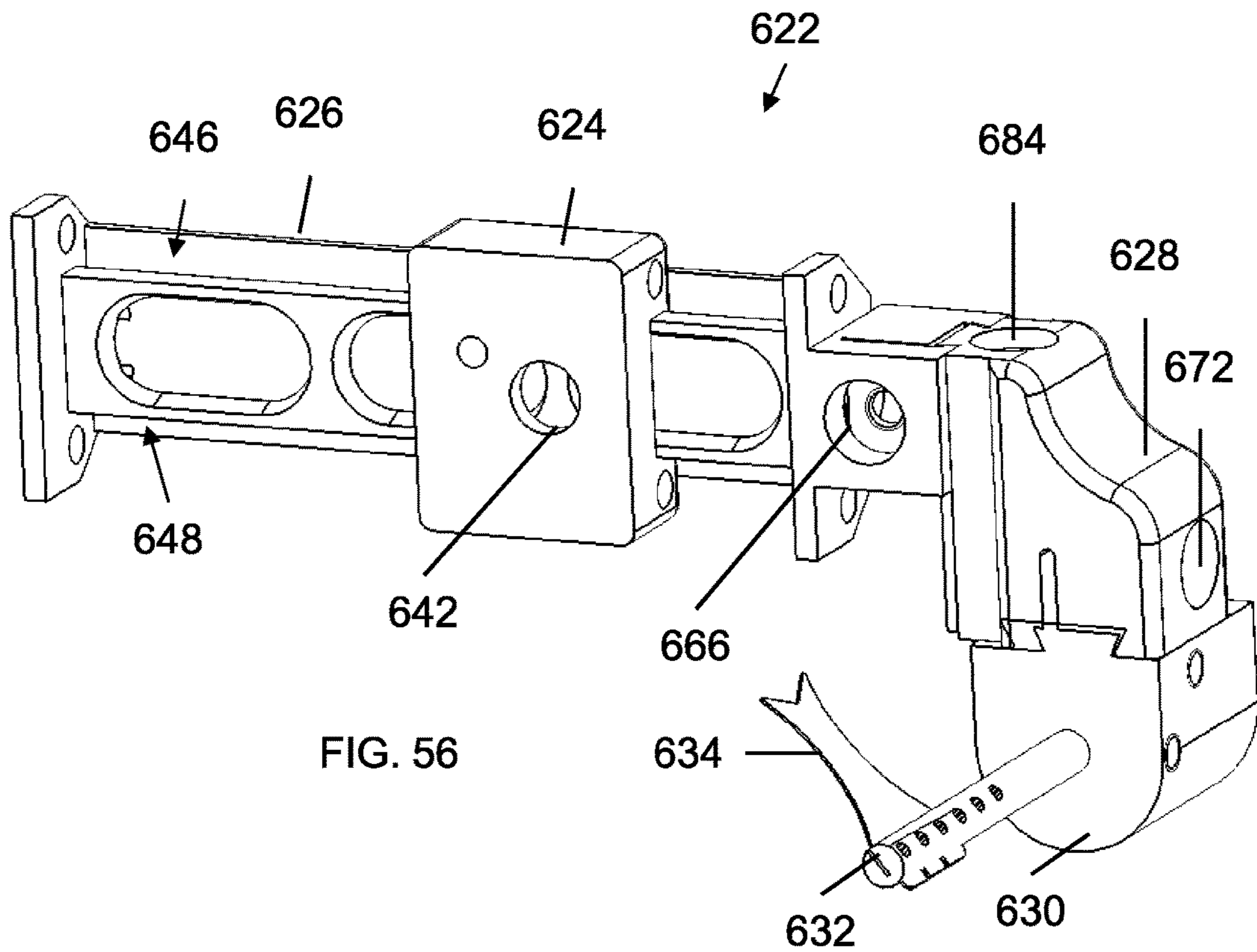
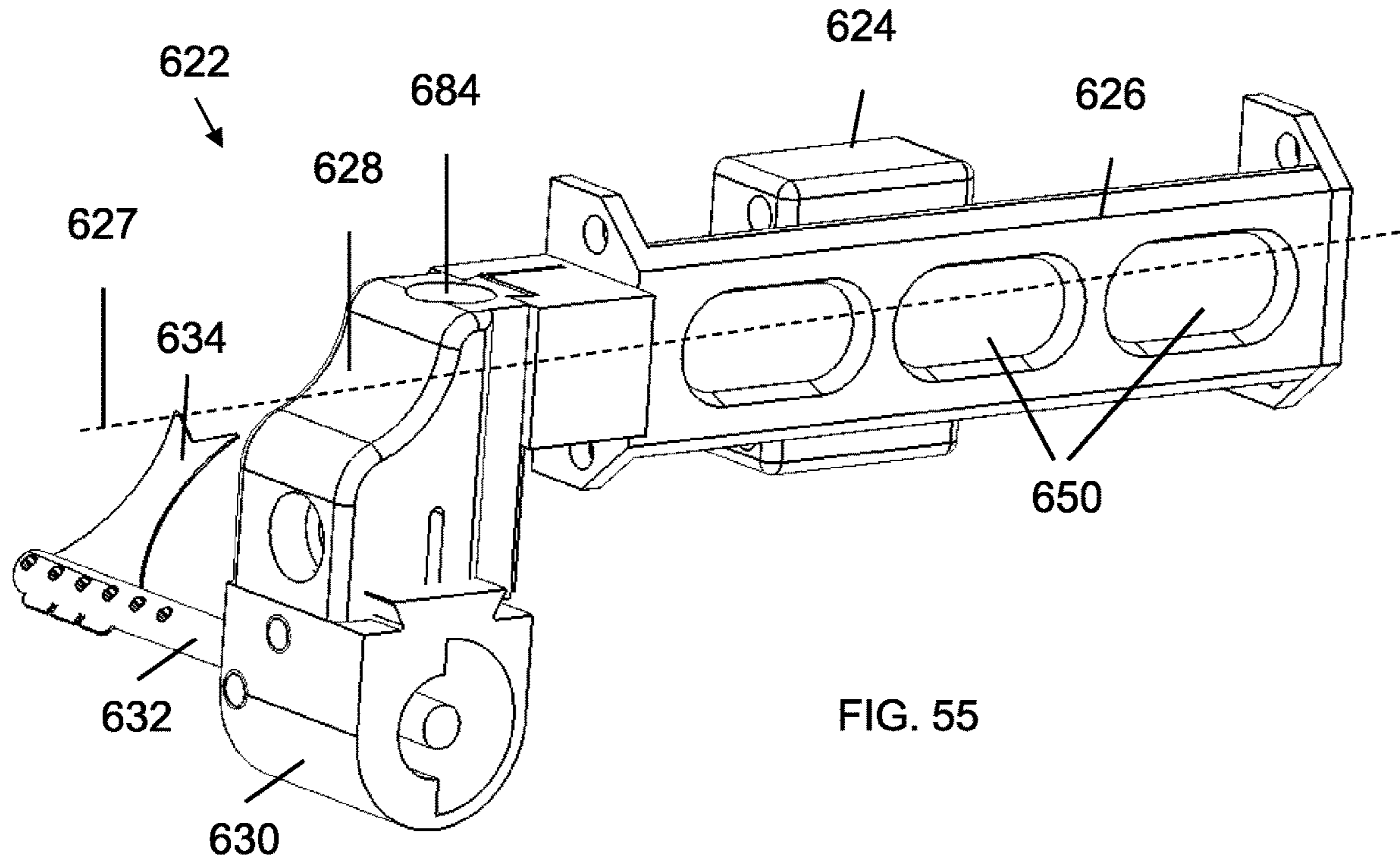


FIG. 54b



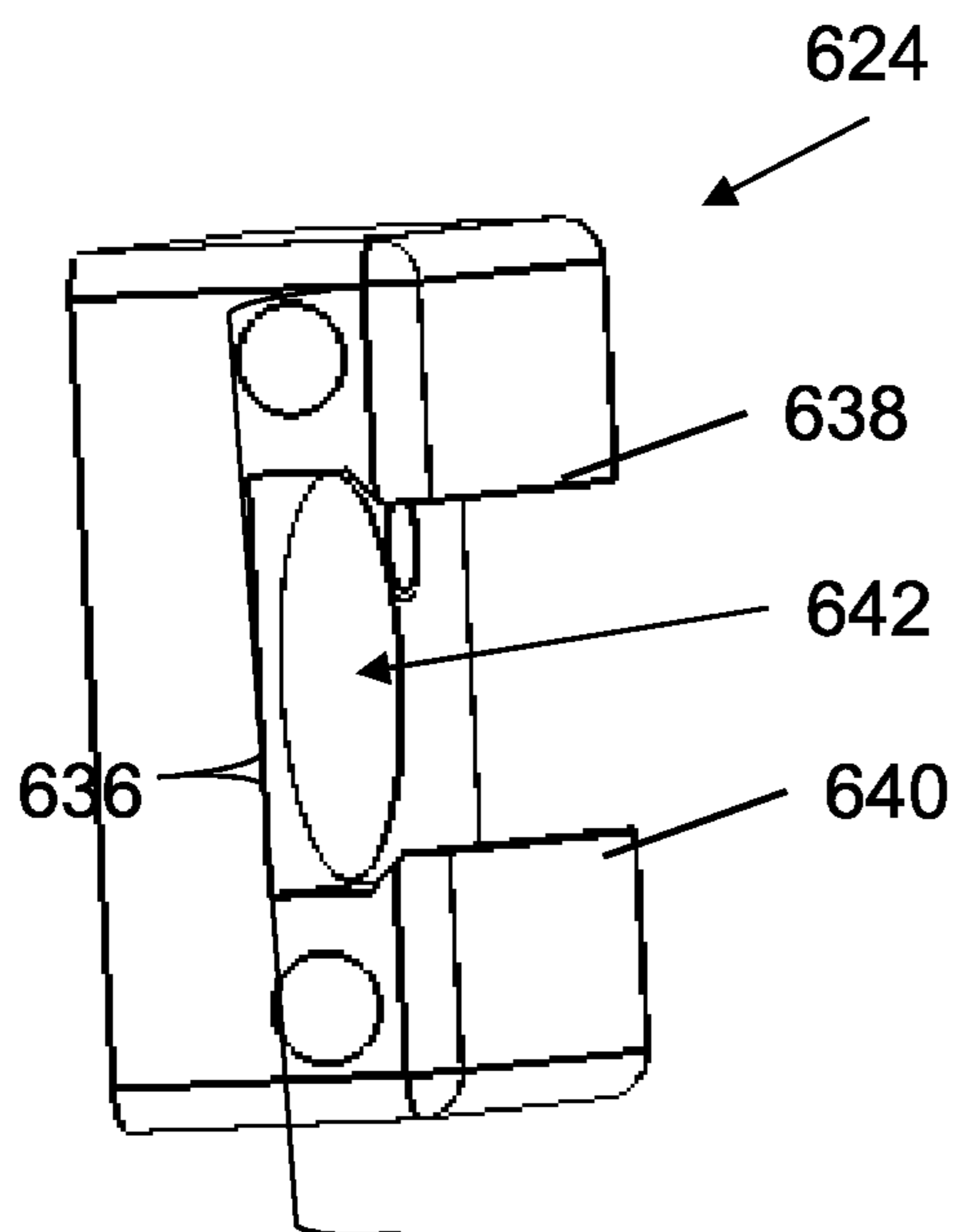


FIG. 57a

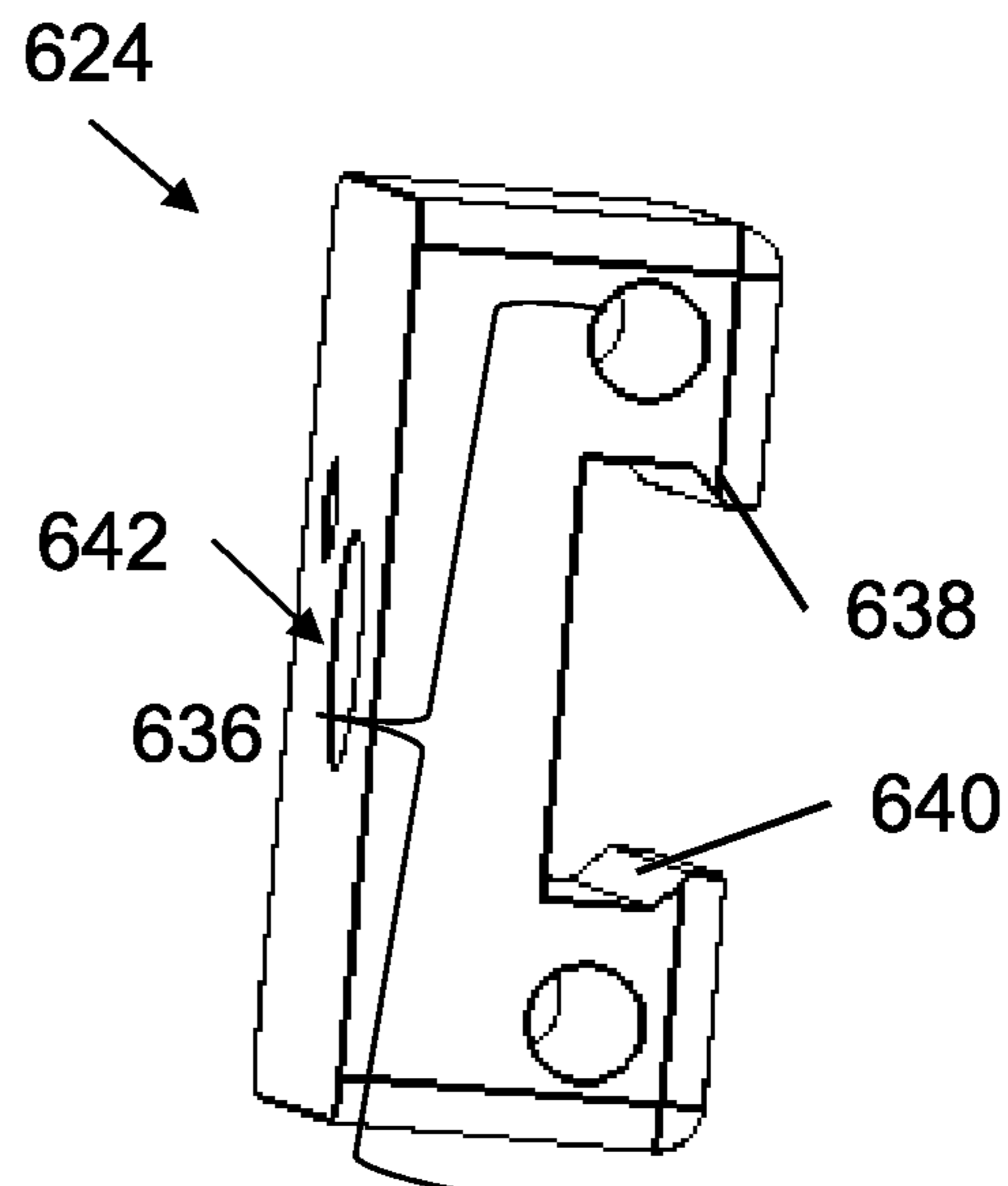


FIG. 57b

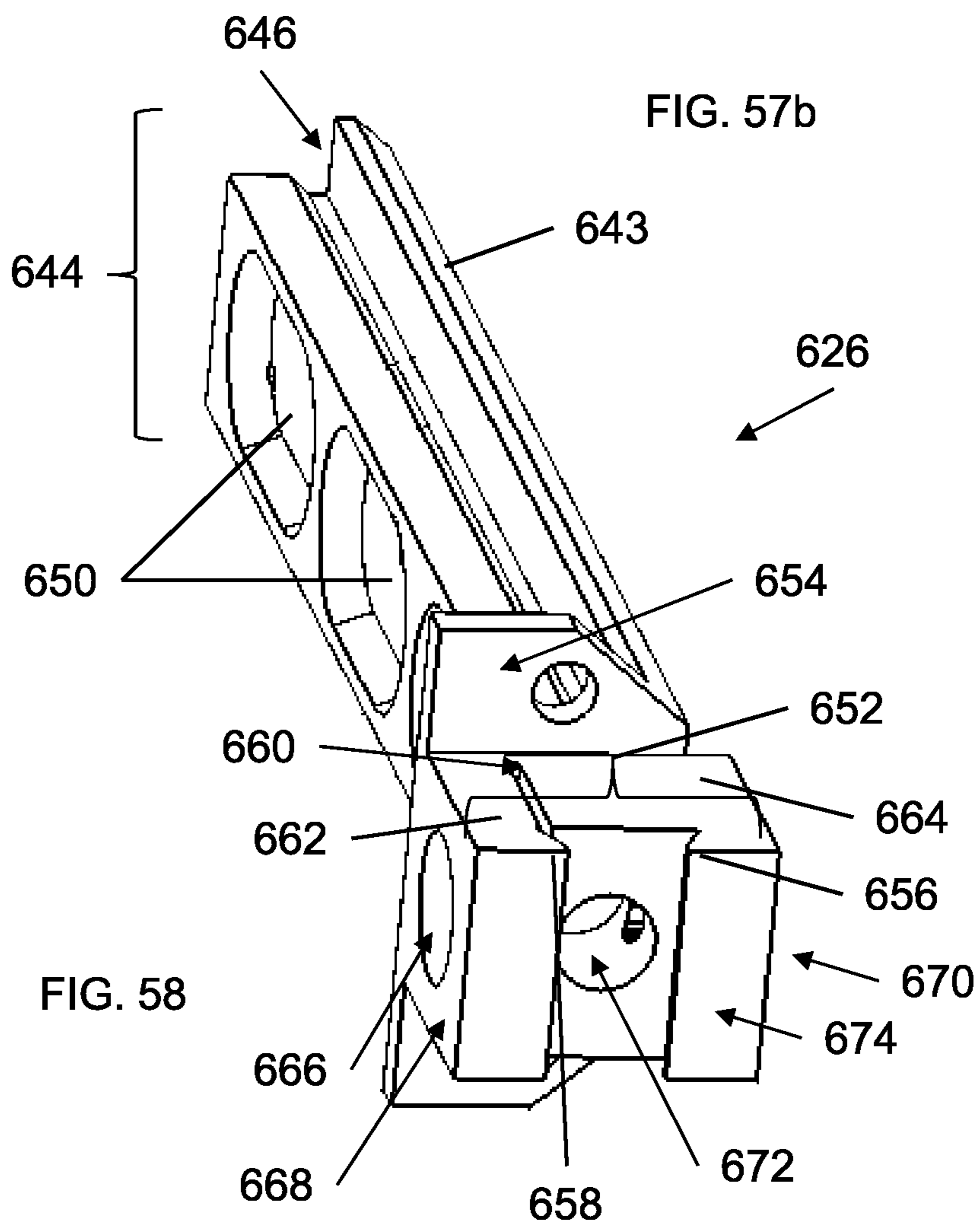


FIG. 58

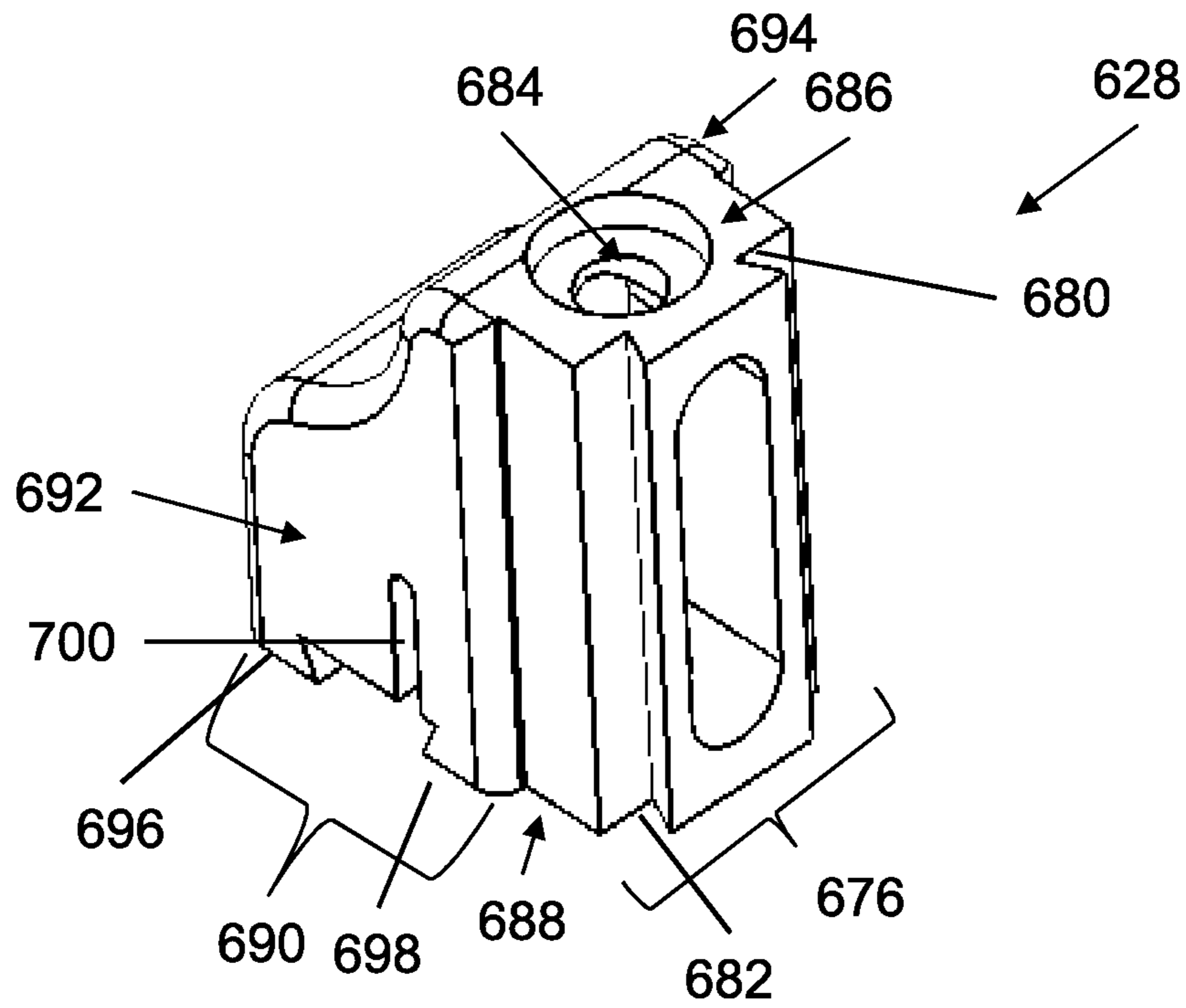


FIG. 59

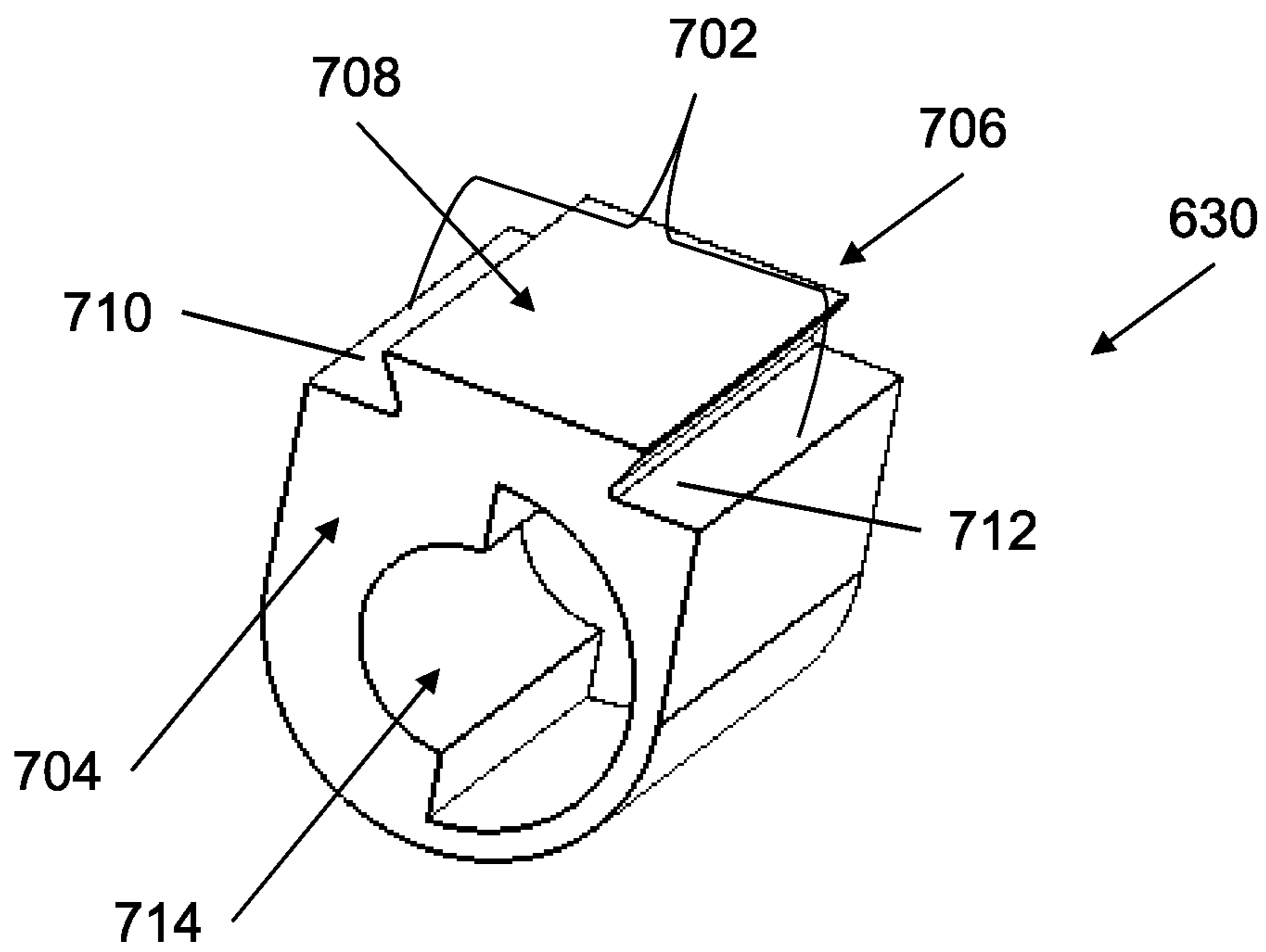


FIG. 60

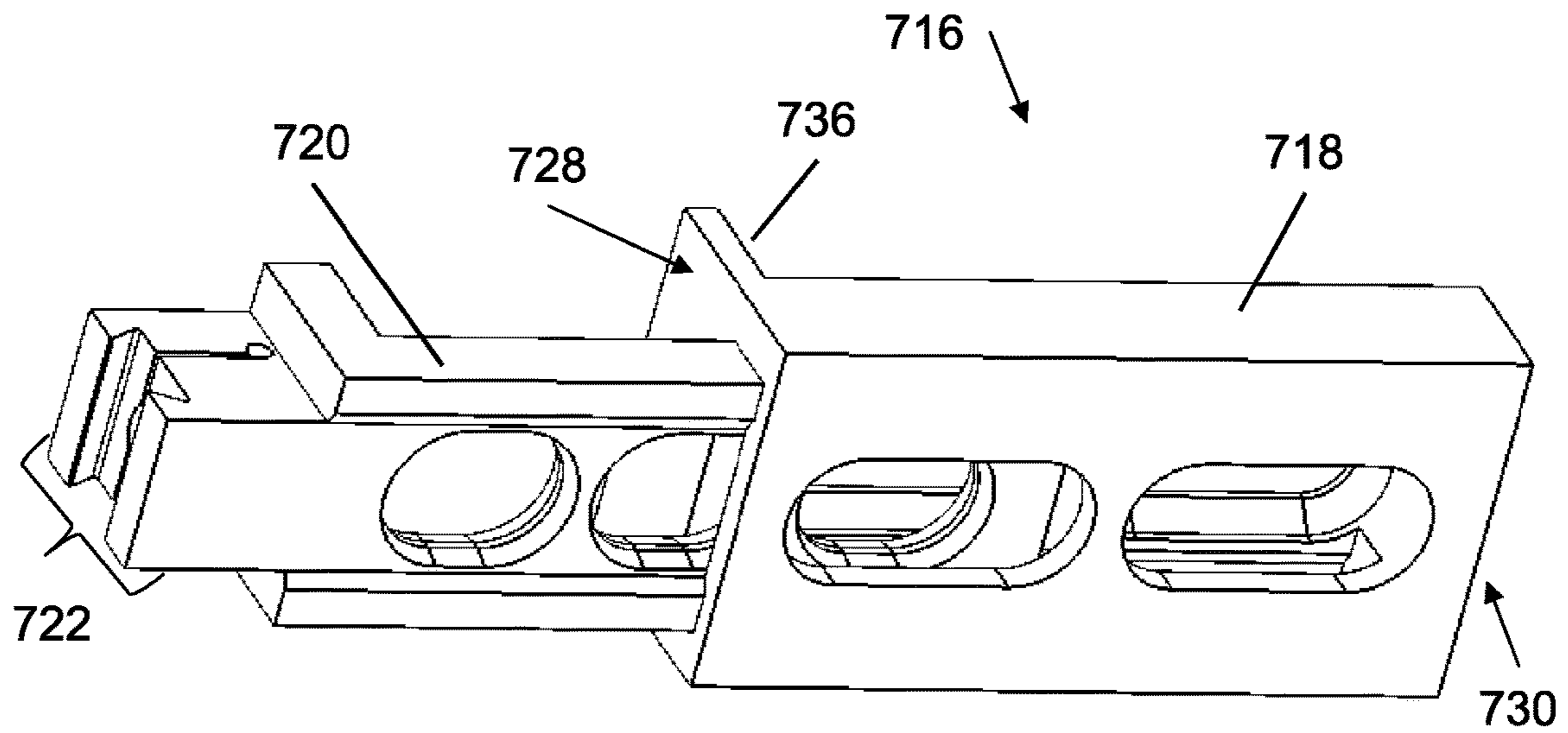


FIG. 61

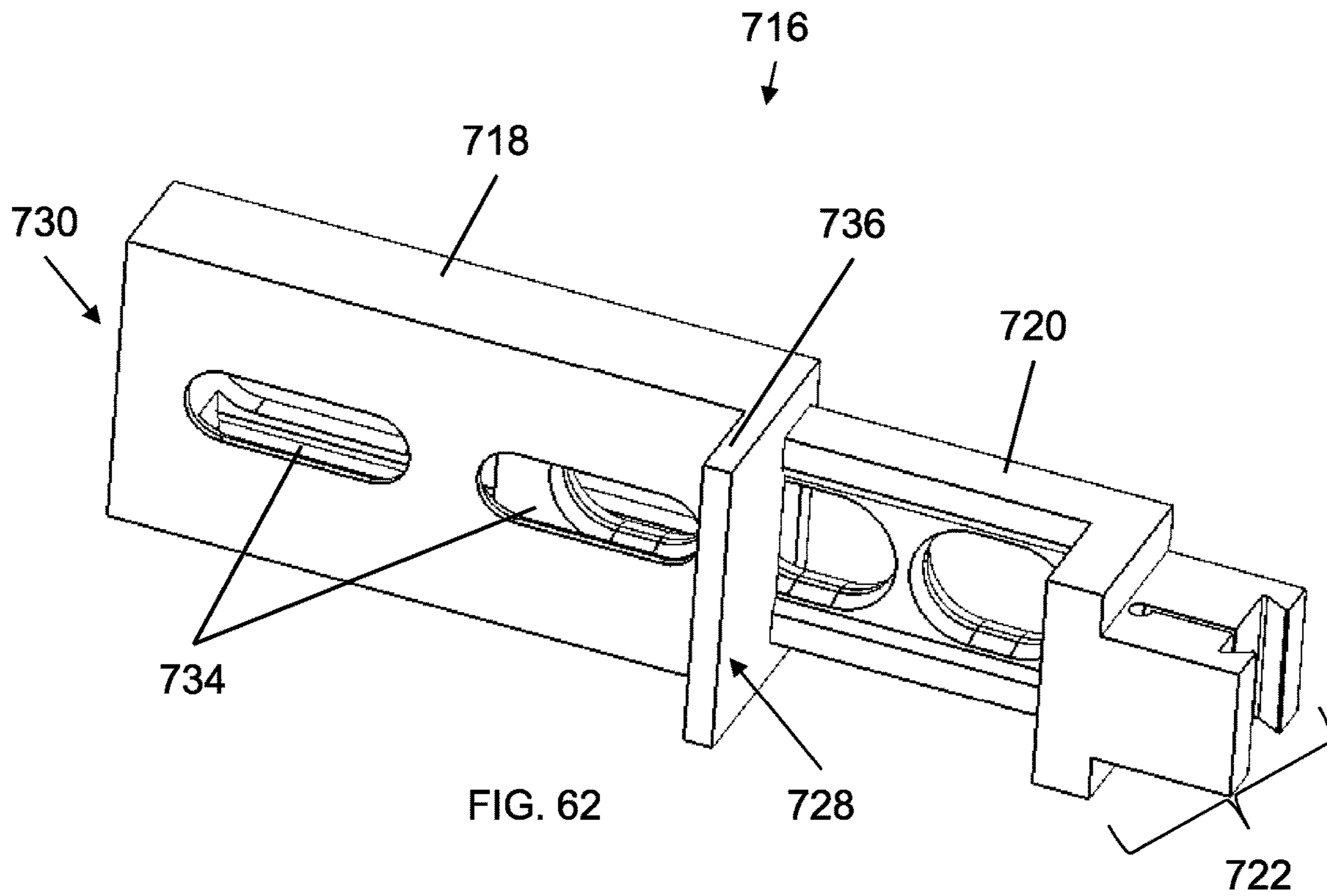


FIG. 62

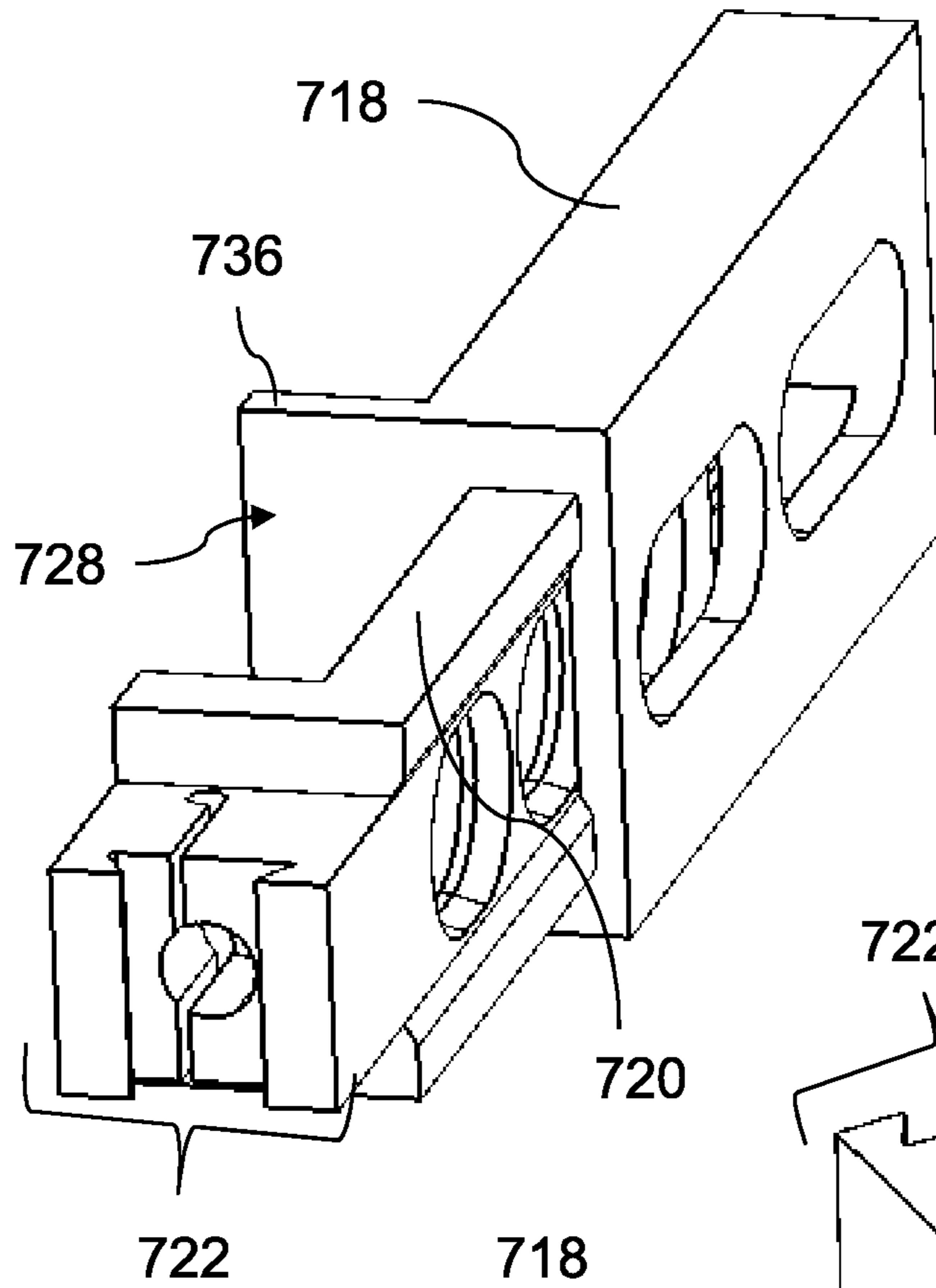


FIG. 63

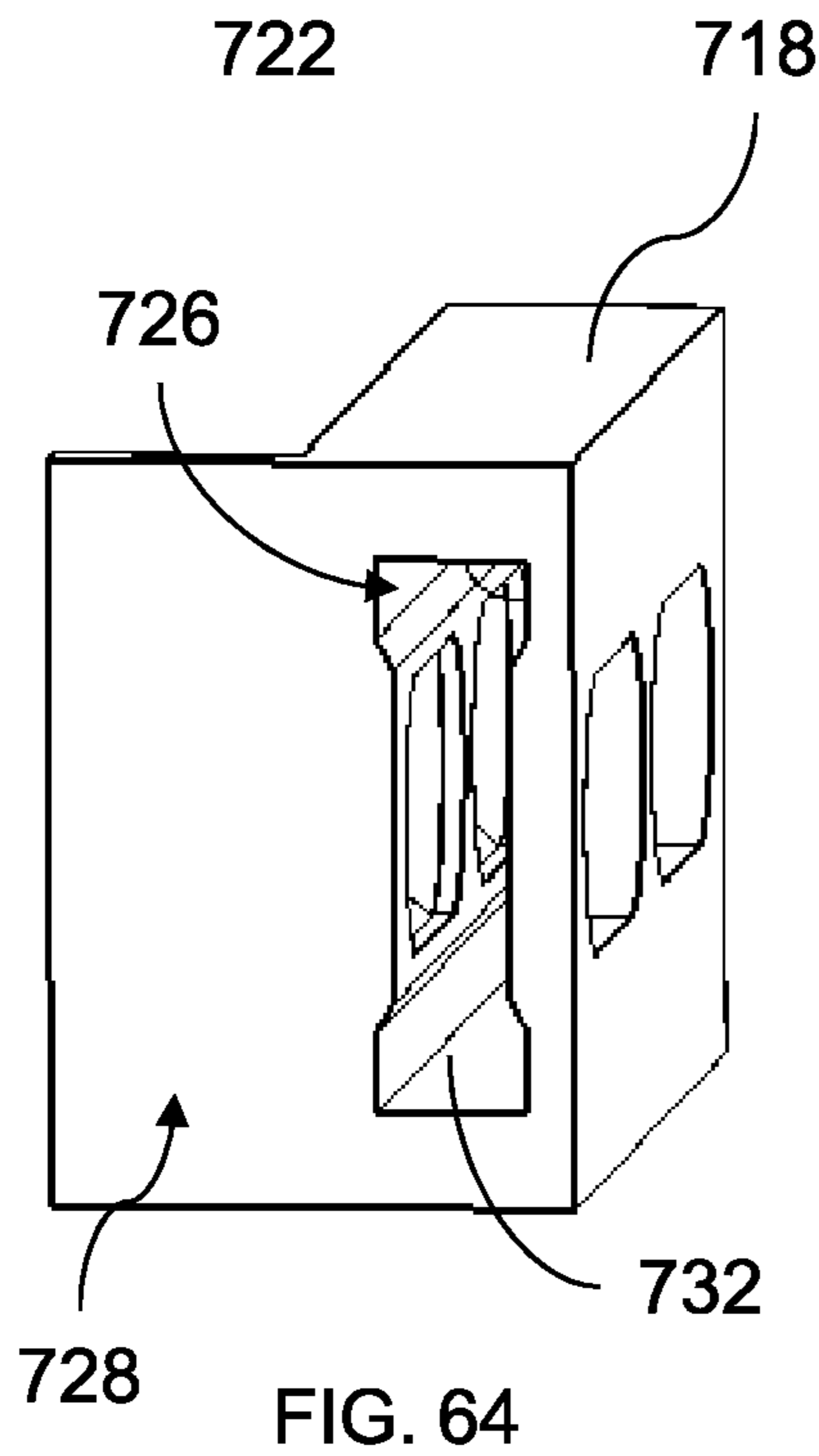


FIG. 64

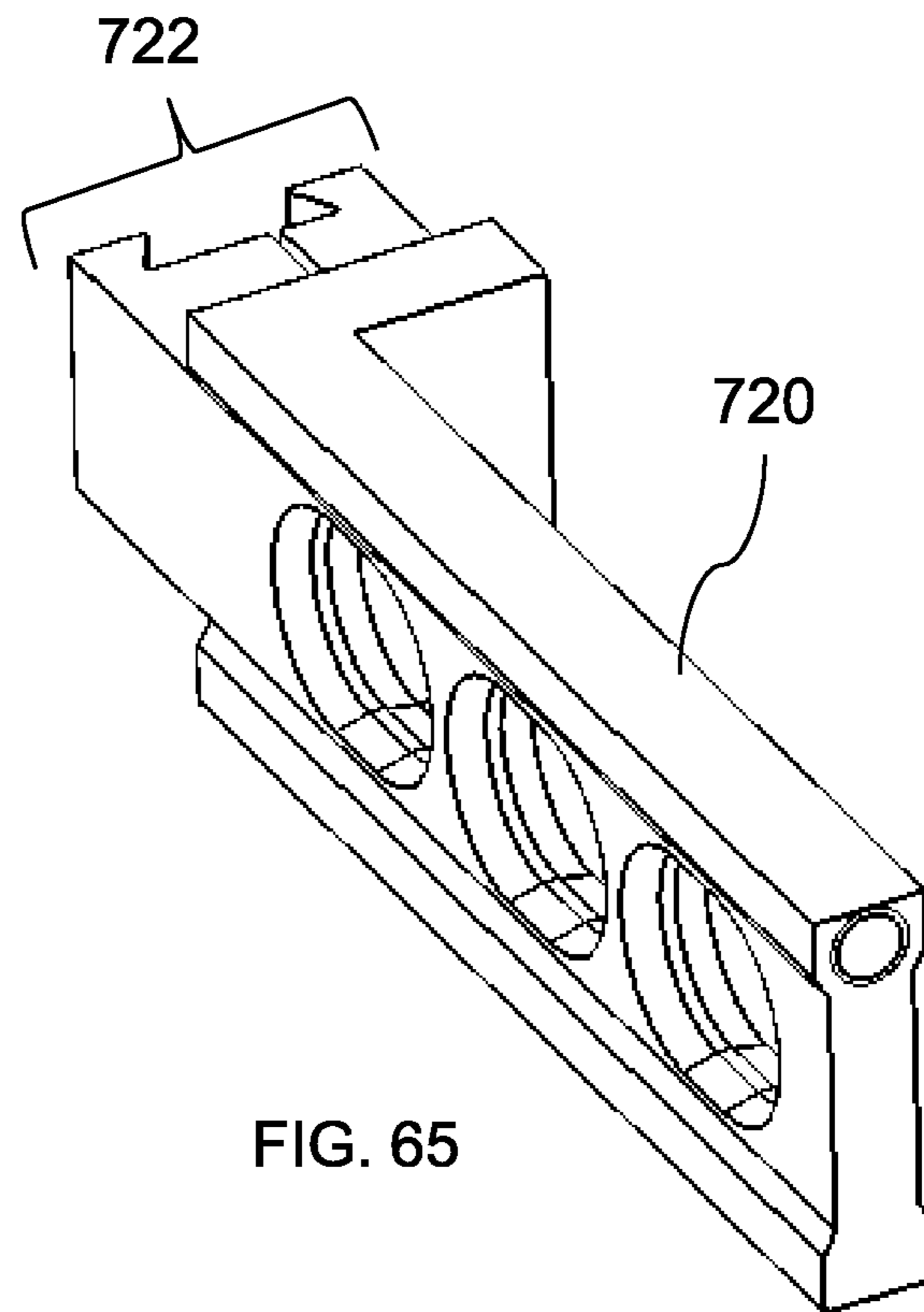


FIG. 65

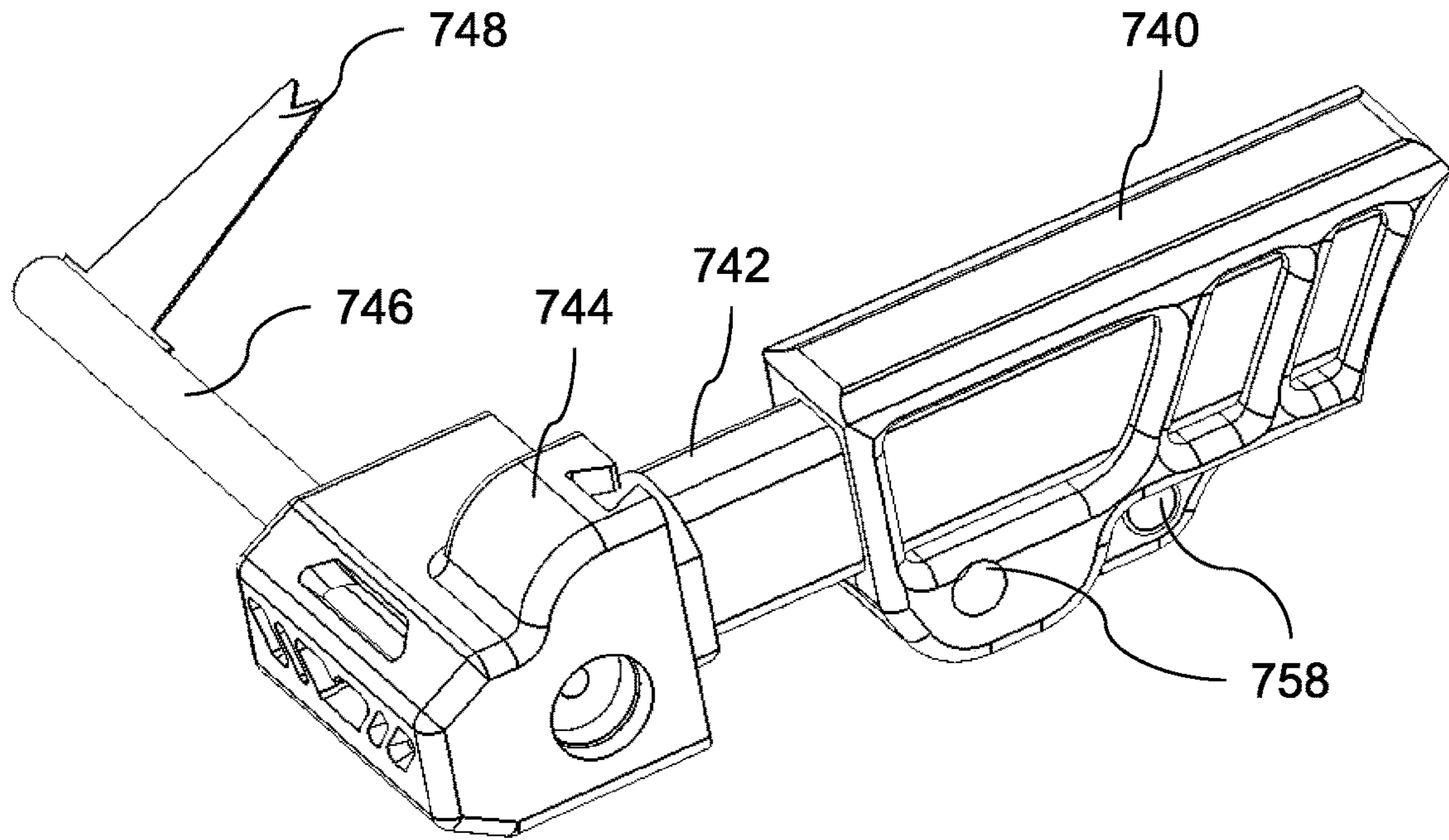


FIG. 66

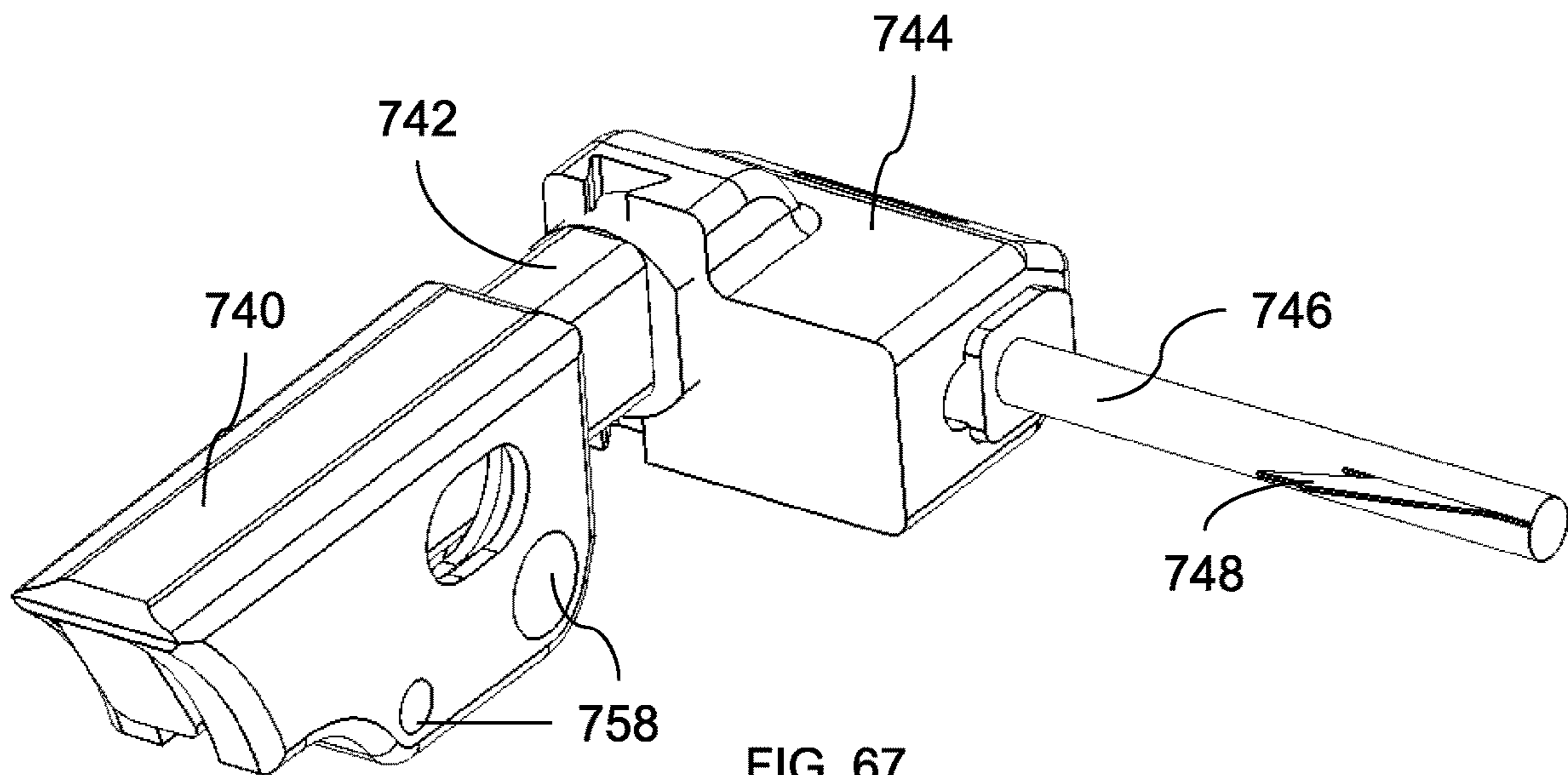
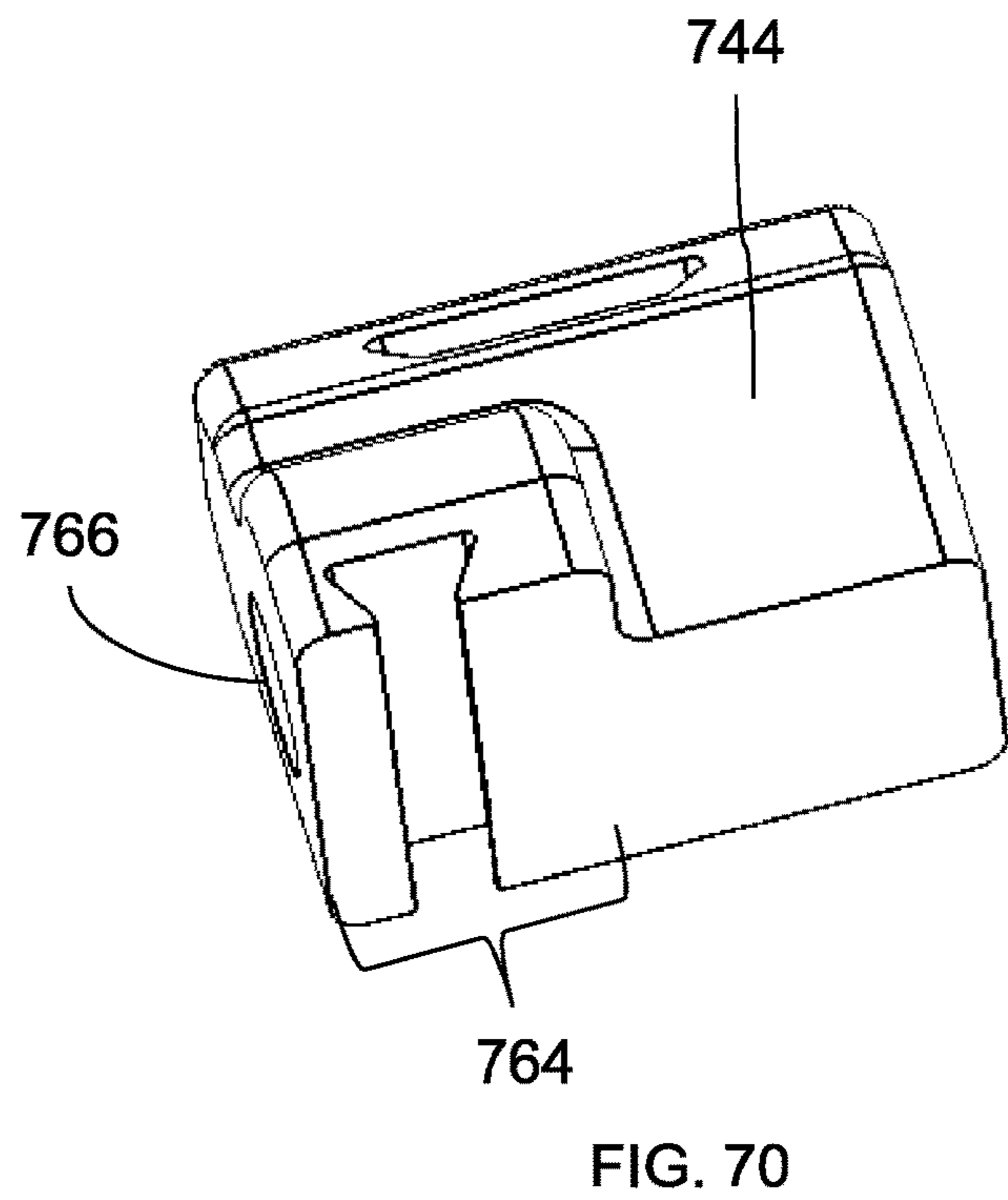
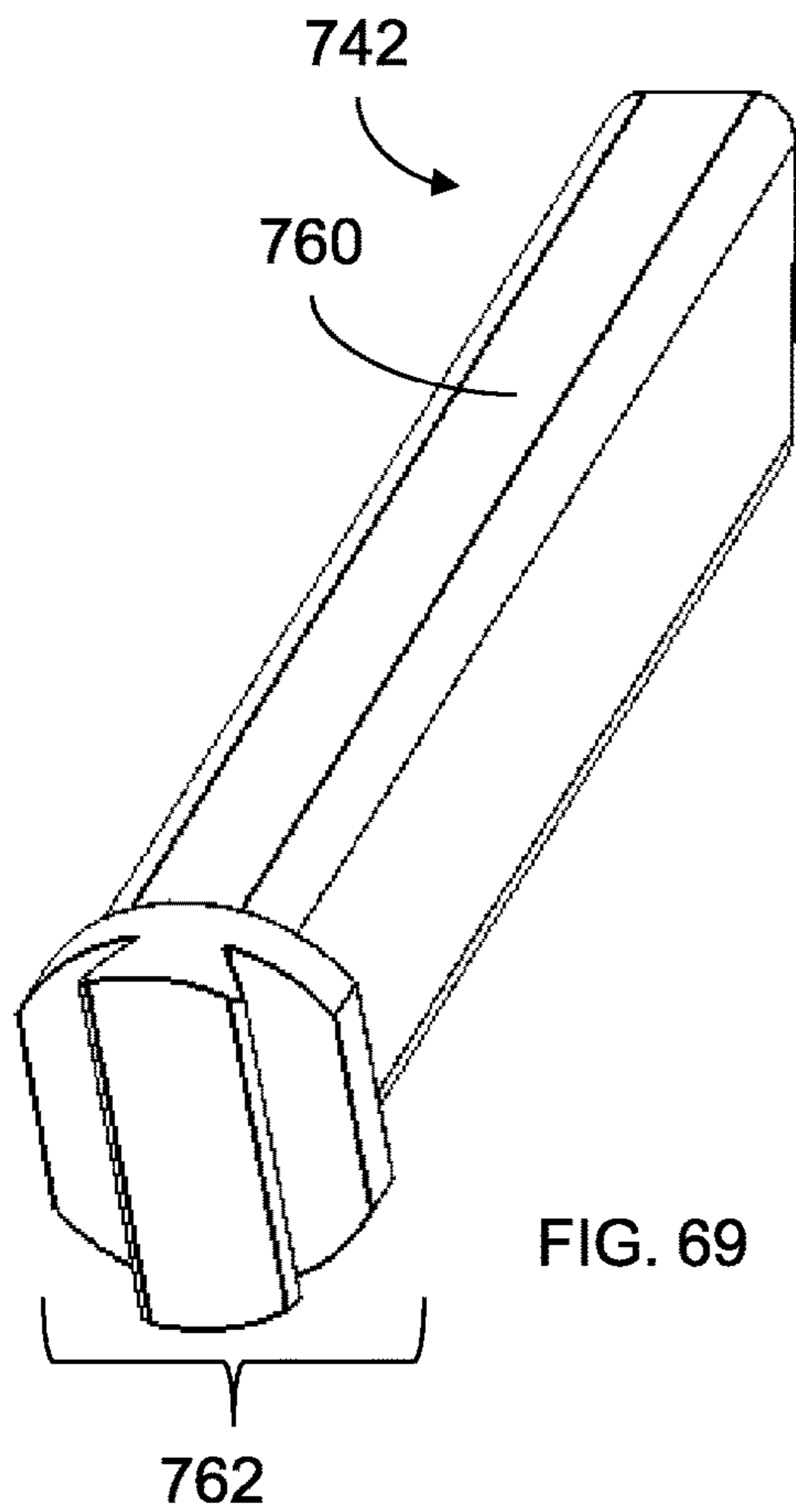
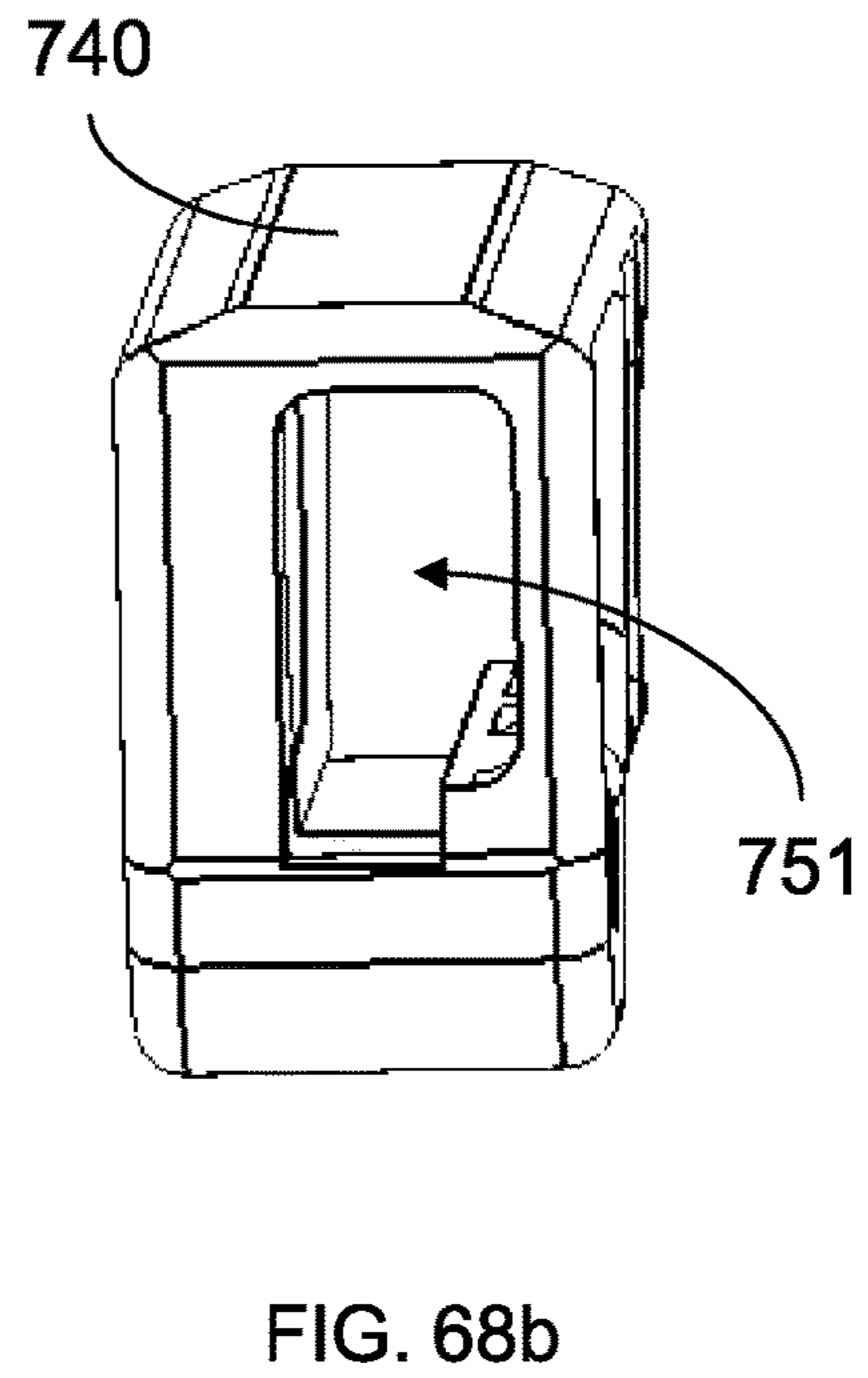
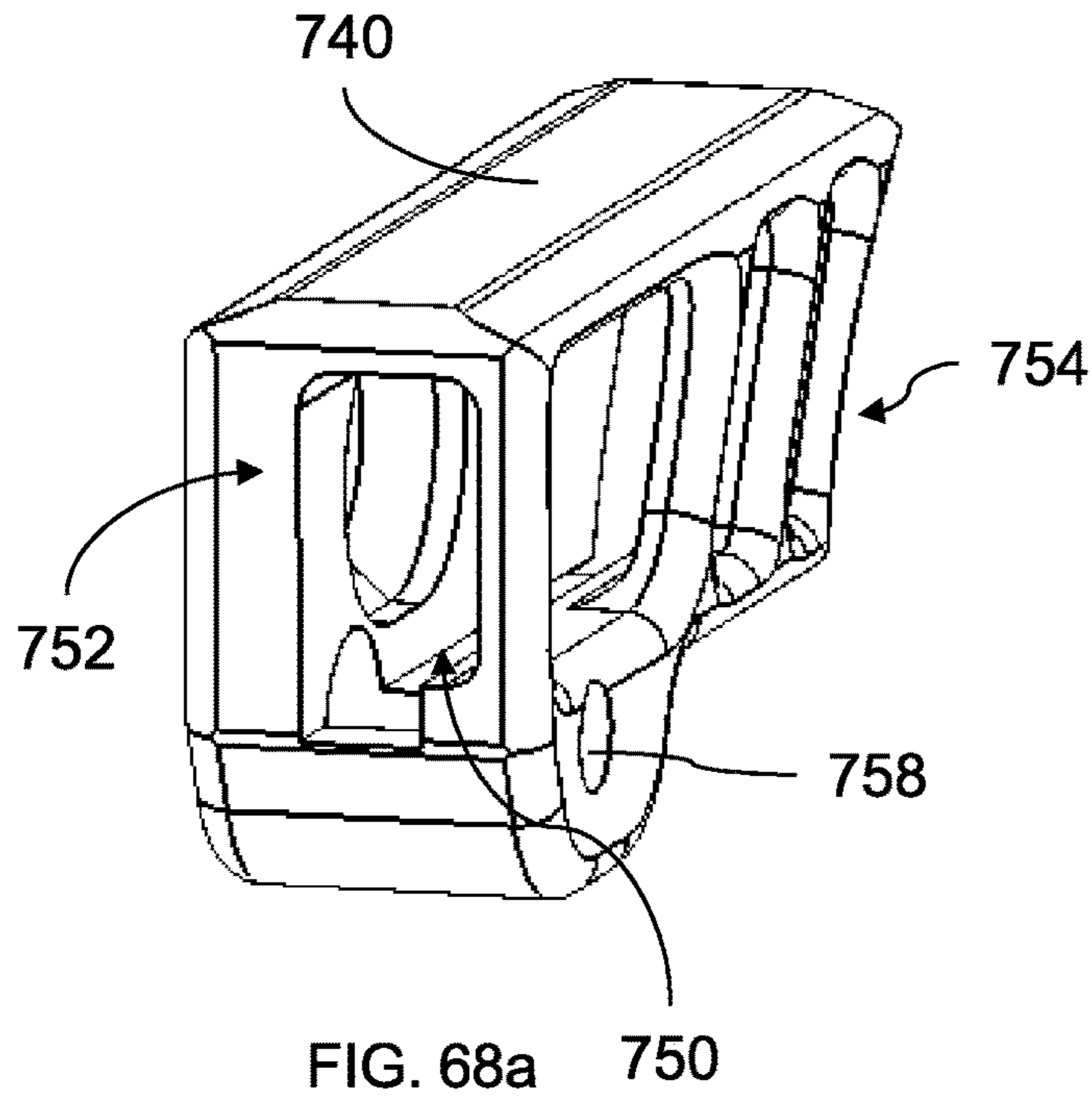


FIG. 67





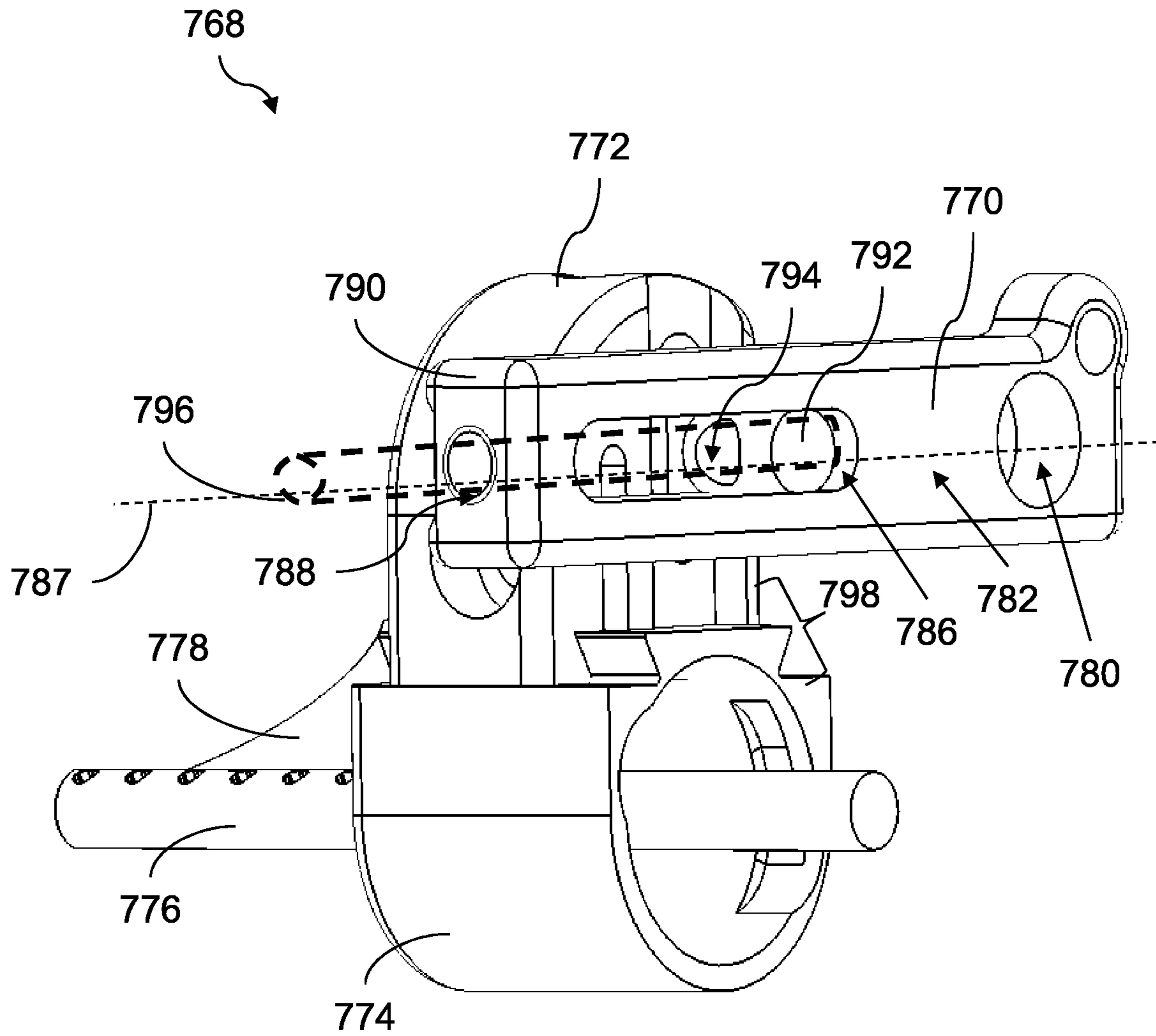


FIG. 71

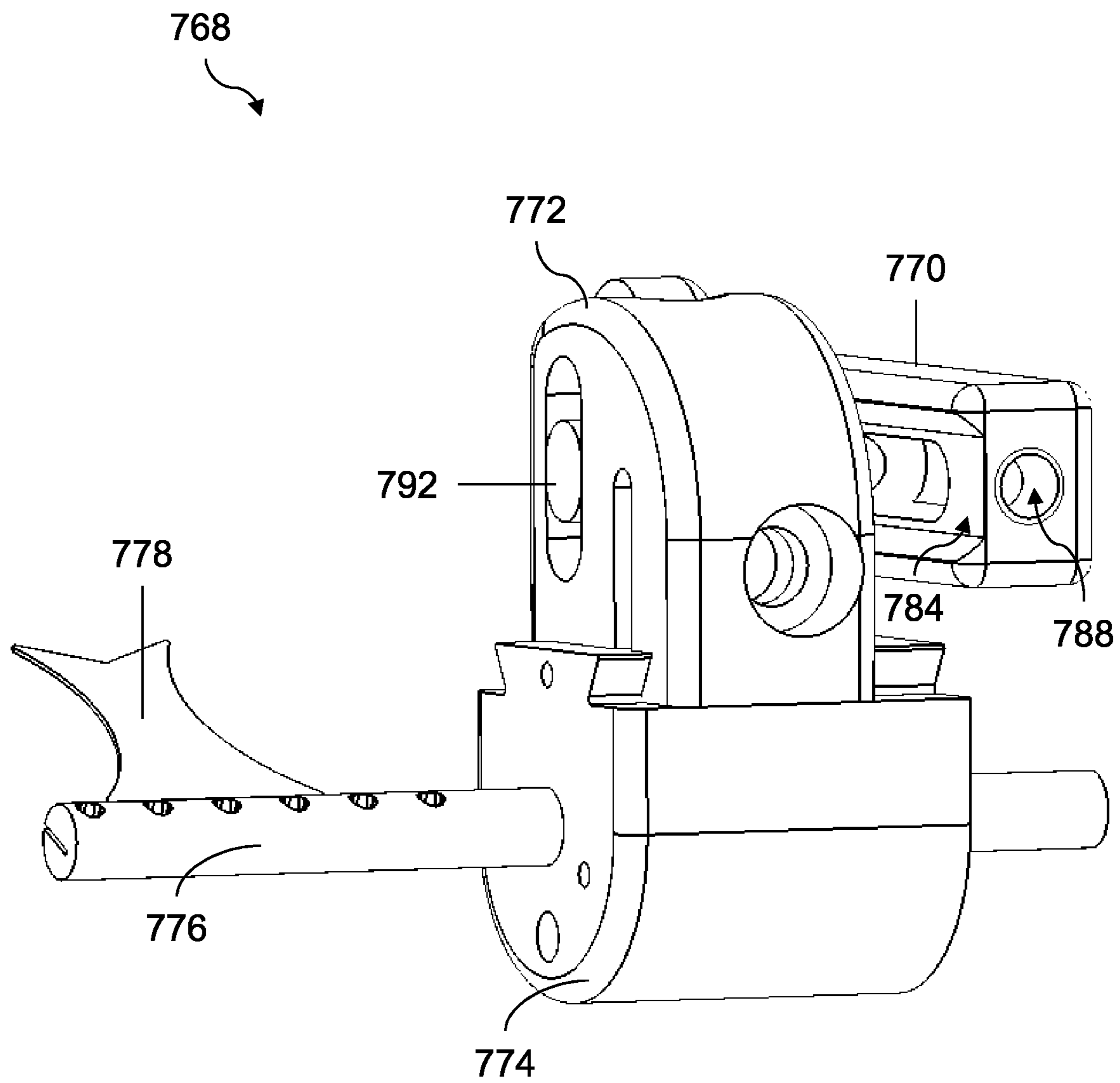


FIG. 72

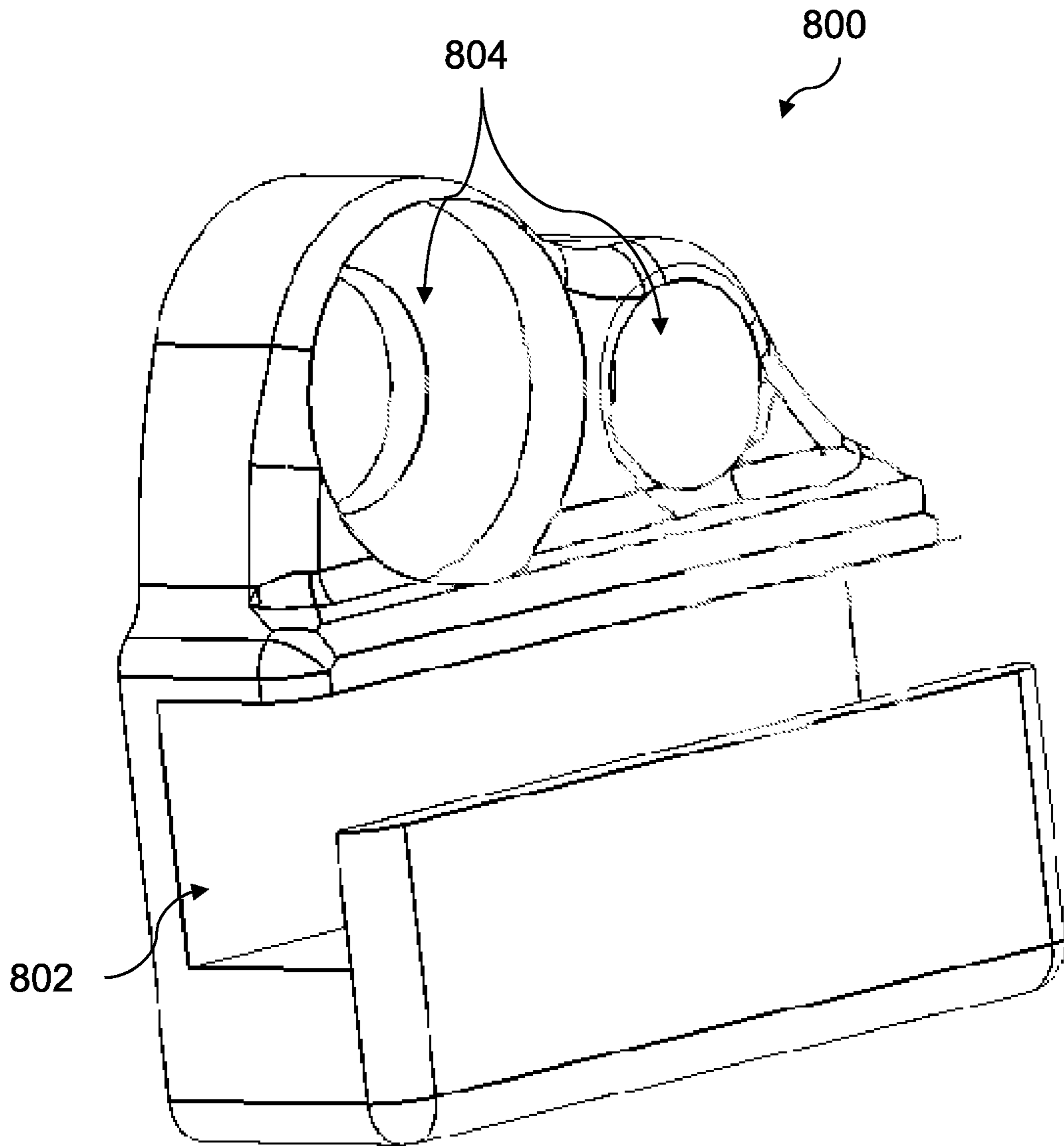


FIG. 73

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## ARROW REST MOUNTING SYSTEM ENABLING SLIDE-BASED POSITION ADJUSTMENT

### CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of, and claims the benefit and priority of, U.S. patent application Ser. No. 16/729,626 filed on Dec. 30, 2019, which is a continuation of U.S. patent application Ser. No. 16/143,944 filed on Sep. 27, 2018, now U.S. Pat. No. 10,539,390, which is a continuation of U.S. patent application Ser. No. 15/446,696, now U.S. Pat. No. 10,088,264, filed on Mar. 1, 2017, and claims the benefit and priority of, U.S. Provisional Patent Application No. 62/301,819 filed on Mar. 1, 2016. The entire contents of such applications are hereby incorporated by reference.

### BACKGROUND

An arrow rest is an accessory or component of an archery bow. The arrow rest supports the arrow at a desired position before the archer shoots. The settings for the exact position of the arrow rest can be very important to archers. With the rise in high performance features of bows, there is a growing demand to enable archers to fine tune these settings for the arrow rest.

The known arrow rest is used with a bracket. The bracket has an elongated slot. The archer inserts a screw through the slot to secure the bracket to a preexisting hole in the side of the bow. This known arrow rest has several disadvantages. It is difficult to control the adjustment of the position of the arrow rest after it is installed. For example, the archer may wish to move the arrow rest so that it is closer to the archer or further in front of the archer. To do so, the archer must first loosen the screw. Next, the user must pull or push the bracket as the screw moves rearward or forward within the slot. During this process, the bracket can undesirably rotate or pivot relative to the bow riser. This can alter the angular orientation of the arrow rest, resulting in misalignment. Consequently, such an attempt to adjust the fore-aft position of the arrow rest can impair the fine-tuned setting for the angular orientation of the arrow rest.

Additionally, the known arrow rest relies on a manual, push-pull approach for adjustment. The variability in the user's hand steadiness and hand force can make it difficult to make repeatable, fine adjustments to the fore-aft position of the arrow rest. Furthermore, the position of the known arrow rest on the bow can be unintentionally changed or misaligned due to forces encountered during use or transport of the bow. If the arrow rest's bracket is temporarily removed for transport, for example, there is no known way to reliably and repeatably reattach the bracket at its original, fine-tuned position on the bow. Accordingly, the known arrow rest is not conveniently, reliably, accurately, or repeatably attachable to bows. This decreases the utility and performance of arrow rests and bows for the archers.

The foregoing background describes some, but not necessarily all, of the problems, disadvantages, and shortcomings related to bow accessories, including arrow rests.

### SUMMARY

An arrow rest mounting system is disclosed. The system, in an embodiment, includes a body configured to be coupled to an archery bow and an arm configured to be moveably

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coupled to the body. The arm includes an arrow rest support. The system has a position adjuster configured to cause a slide movement of the arm relative to the body.

In an embodiment, an arrow rest mounting system is disclosed. The arrow rest mounting system includes a body including a bow engager configured to be coupled to an archery bow and an arm engager. The archery bow is configured to be aimed at a target, wherein a portion of the target extends in a target plane. The mounting system additionally includes an arm moveably coupled to the arm engager. The arm is configured to slidably cooperate with the arm engager. The arm includes an arrow rest support configured to support an arrow rest.

A position adjuster is operatively coupled to the arm. When the bow engager is coupled to the archery bow, the position adjuster is configured to cause a slide movement of the arm relative to the arm engager. The arm engager and the arm include a plurality of slide guides configured to cooperate to direct the slide movement along an axis. The axis intersects with the target plane when the bow engager is coupled to the archery bow and the archery bow is aimed at the target. The slide guides are configured to inhibit rotation of the arm relative to the archery bow during the slide movement.

In another embodiment, an arrow rest mounting system is described. The mounting system includes a body and an arm configured to be moveably coupled to the body. The arm is configured to slidably cooperate with the body and includes an arrow rest support configured to support an arrow rest. A position adjuster is operatively coupled to the arm. When the body is coupled to the archery bow, the position adjuster is configured to cause a slide movement of the arm relative to the body.

In yet another embodiment, a method for manufacturing an arrow rest mounting system is described. The method includes structuring a body so that the body is configured to: (a) be mounted to an archery bow; and (b) define a first slide guide. The method further includes structuring an arm so that the arm is configured to: (a) support an arrow rest; (b) slidably cooperate with the body; and (c) define a second slide guide. The method additionally includes structuring a position adjuster so that: (a) the position adjuster is configured to be operatively coupled to the arm; and (b) the position adjuster is configured to cause a slide movement of the arm relative to the body so that the slide movement involves a cooperation of the first and second slide guides.

Additional features and advantages of the present disclosure are described in, and will be apparent from, the following Brief Description of the Drawings and Detailed Description.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view of an embodiment of an archery bow.

FIG. 2 is front view of the archery bow of FIG. 1 having an embodiment of an arrow rest coupled to the bow riser by an embodiment of a mounting system.

FIG. 3 is rear isometric view of the archery bow of FIG. 2.

FIG. 4 is an enlarged view of the archery bow of FIG. 3, showing the arrow rest and mounting system coupled to the archery bow.

FIG. 5 is an isometric view of an embodiment of an arrow rest mounting system.

FIG. 6 is a top isometric view of the arrow rest mounting system of FIG. 5

FIG. 7 is bottom view of the arrow rest mounting system of FIGS. 5-6.

FIG. 8 is an isometric view of an embodiment of a main body of the arrow rest mounting system of FIGS. 5-7.

FIG. 9 is another isometric view of the main body of FIG. 8.

FIG. 10 is an isometric view of an embodiment of an arm of the arrow rest mounting system of FIGS. 5-7.

FIG. 11 is another isometric view of the arm of FIG. 10.

FIG. 12 is an isometric view of the arm of FIGS. 10-11, showing an embodiment of an arrow rest coupled thereto.

FIG. 13 is an isometric view of another embodiment of an arrow rest mounting system.

FIG. 14 is another isometric view of the arrow rest mounting system of FIG. 13.

FIG. 15 is an isometric view of the arrow rest mounting system of FIGS. 13-14.

FIG. 16 is a top isometric view of the arrow rest mounting system of FIGS. 13-15.

FIG. 17 is a bottom isometric view of the arrow rest mounting system of FIGS. 13-16.

FIG. 18 is partial cutaway view of the arrow rest mounting system of FIGS. 13-17.

FIG. 19a is a side view of an embodiment of an arm.

FIG. 19b is a bottom isometric view of the arm of FIG. 19.

FIG. 19c is a top isometric view of the arm of FIGS. 19-20.

FIG. 19d is an isometric view of the arm of FIG. 22.

FIG. 20 is an exploded assembly view of the arrow rest mounting system of FIGS. 13-17.

FIG. 21 is an exploded bottom isometric view of an embodiment of a body and arm of the arrow rest mounting system of FIGS. 13-17.

FIG. 22 is an exploded top isometric view of the body and arm of FIG. 21.

FIG. 23 is an isometric view of the body and arm of FIG. 22, shown assembled.

FIG. 24 is another isometric of the assembled body and arm of FIG. 23.

FIG. 25 is another isometric view of the assembled body and arm of FIGS. 23-24.

FIG. 26 is an exploded assembly view of the body and arm of FIG. 25.

FIG. 27a is a rear view of the assembled body and arm of FIG. 25, shown in an unlocked condition.

FIG. 27b is 27b is a rear view of the assembled body and arm of FIG. 27a, shown in a locked condition.

FIG. 28a is side view of the assembled body and arm of FIG. 25

FIG. 28b is front view of the assembled body and arm of FIG. 28a.

FIG. 29a is a bottom isometric view of an embodiment of a bottom body section and an alignment pin.

FIG. 29b is a top isometric view of the bottom body section and alignment pin of FIG. 29a.

FIG. 29c is another top isometric view of the bottom body section and alignment pin of FIGS. 29a-29b.

FIG. 30a is a bottom isometric view of an embodiment of a top body section.

FIG. 30b is another bottom isometric view of the top body section of FIG. 30a.

FIG. 30c is a top isometric view of the top body section of FIGS. 30a-30b.

FIG. 31a is an isometric view of an embodiment of a first adjustment body.

FIG. 31b is another isometric view of the first adjustment body of FIG. 31a.

FIG. 32a is an isometric view of an embodiment of a second adjustment body.

FIG. 32b is another isometric view of the second adjustment body of FIG. 32a.

FIG. 33 is an illustration of an archery bow having the arrow rest mounting system of FIGS. 13-17 mounted thereon.

FIG. 34 is an enlarged view of FIG. 33.

FIG. 35 is an another enlarged view of the arrow rest mounting system of FIGS. 13-17 mounted to an archery bow.

FIG. 36 is a isometric view of an embodiment of a body arm assembly.

FIG. 37 is an exploded assembly view of the body arm assembly of FIG. 36.

FIG. 38a is front view of the body arm assembly of FIGS. 36-37, showing an unlocked condition.

FIG. 38b is front view of the body arm assembly of FIG. 38a, showing a locked condition.

FIG. 39 is an isometric view of an embodiment of an arrow rest mounting system.

FIG. 40 is another isometric view of the arrow rest mounting system of FIG. 39.

FIG. 41 is another isometric view of the arrow rest mounting system of FIGS. 39-40.

FIG. 42 is a top view of the arrow rest mounting system of FIGS. 39-41.

FIG. 43a is top isometric view of an embodiment of an arm for the arrow rest mounting system of FIGS. 39-42.

FIG. 43b is a bottom isometric view of the arm of FIG. 43a.

FIG. 44a is an isometric view of an embodiment of a first adjustment body for the arrow rest mounting system of FIGS. 39-42.

FIG. 44b is another isometric view of the first adjustment body of FIG. 44a.

FIG. 44c is another isometric view of the first adjustment body of FIGS. 44a-44b.

FIG. 45a is an isometric view of an embodiment of a second adjustment body for the arrow rest mounting system of FIGS. 39-42.

FIG. 45b is another isometric view of the second adjustment body of FIG. 45a.

FIG. 46 is an isometric view of an embodiment of an arrow rest assembly for the arrow rest mounting system of FIGS. 39-42.

FIG. 47 is an isometric view of an embodiment of an arrow rest mounting system.

FIG. 48 is an isometric view of the arrow rest mounting system of FIG. 47.

FIG. 49 is a side view of the arrow rest mounting system of FIGS. 47-48.

FIG. 50 is a bottom isometric view of the arrow rest mounting system of FIGS. 47-49.

FIG. 51a is an isometric view of an embodiment of an arm of the arrow rest mounting system of FIGS. 47-49.

FIG. 51b is another isometric view of the arm of FIG. 51a.

FIG. 52a is an isometric view of a body of the arrow rest mounting system of FIGS. 47-49.

FIG. 52b is another isometric view of the body of FIG. 52a.

FIG. 53a is an isometric view of an embodiment of a first adjustment body of the arrow rest mounting system of FIGS. 47-49.

FIG. 53b is another isometric view of the first adjustment body of FIG. 53a.

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FIG. 53c is another isometric view of the first adjustment body of FIGS. 53a-53b.

FIG. 54a is an isometric view of an embodiment of a second adjustment body of the arrow rest mounting system of FIGS. 47-49.

FIG. 54b is another isometric view of the second adjustment body of FIG. 54a.

FIG. 55 is an isometric view of an embodiment of an arrow rest mounting system.

FIG. 56 is another isometric view of the arrow rest mounting system of FIG. 55.

FIG. 57a is an isometric view of an embodiment of a body of the arrow rest mounting system of FIGS. 54-55.

FIG. 57b is another isometric view of the body of FIG. 57a.

FIG. 58 is an isometric view of an embodiment of an arm of the arrow rest mounting system of FIGS. 54-55.

FIG. 59 is an isometric view of an embodiment of a first adjustment body of the arrow rest mounting system of FIGS. 54-55.

FIG. 60 is an isometric view of an embodiment of a second adjustment body of the arrow rest mounting system of FIGS. 54-55.

FIG. 61 is isometric view of an embodiment of a body arm assembly.

FIG. 62 is another isometric view of the body arm assembly of FIG. 61.

FIG. 63 is another isometric view of the body arm assembly of FIGS. 61-62.

FIG. 64 is an isometric view of an embodiment of a body of the body arm assembly of FIGS. 61-63.

FIG. 65 is an isometric view of an embodiment of an arm of the body arm assembly of FIGS. 61-63.

FIG. 66 is an isometric view of an embodiment of an arrow rest mounting system.

FIG. 67 is another isometric view of the arrow rest mounting system of FIG. 66.

FIG. 68a is an isometric view of an embodiment of a body of the arrow rest mounting system of FIGS. 66-67.

FIG. 68b is another isometric view of the body of FIG. 68.

FIG. 69 is an isometric view of an embodiment of an arm of the arrow rest mounting system of FIGS. 66-67.

FIG. 70 is an isometric view of an embodiment of a first adjustment body of the arrow rest mounting system of FIGS. 66-67.

FIG. 71 is an isometric view of an embodiment of an arrow rest mounting system.

FIG. 72 is another isometric view of the arrow rest mounting system of FIG. 71.

FIG. 73 is an isometric view of an embodiment of a body.

## DETAILED DESCRIPTION

As illustrated in FIGS. 1-4, in one embodiment, an archery bow 102 includes a bowstring 103 coupled to limbs 105. The limbs 105 are coupled to a riser 104. A bow accessory or accessory, such as an arrow rest 106, can be attached or coupled to the bow riser 104 via an accessory mount or accessory mounting system, such as the arrow rest mounting system 108.

Referring to FIG. 1, when the bow 102 is positioned for operation, the front face 100 of the bow 102 faces in a forward or shooting direction 150 toward a target 153 that extends upright in a target plane 156. The rear face 107 of the bow 102 is positioned facing the archer, in a rearward direction 151 opposite the shooting direction 150. The riser 104 additionally includes a plurality of side surfaces 110. As

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shown in FIG. 4, in an example, the arrow rest mounting system 108 can be coupled to a side surface 110 of the bow riser 104.

In an example illustrated in FIGS. 3-4, the arrow rest 106 is coupled to the arrow rest mounting system 108 such that the arrow holder 111 holds the arrow 109 to direct the arrow 109 toward the target. The arrow 109 extends in an arrow plane that intersects with the target plane 156. In this embodiment, when the arrow rest mounting system 108 is coupled to the riser 104 and the bow 102 is in the operational, upright or vertical position, the arrow rest 106 is offset to the right or left of the arrow rest mounting system 108. This offset position locates the arrow rest 106 into the user's field of vision or aiming zone to facilitate shooting.

Referring to FIG. 5, in an embodiment, the arrow rest mounting system 108 includes a body or main body 112 and an arm 114. The main body 112 is configured to mount and couple to the side surface 110 of the bow riser 104. Referring to FIGS. 8-10, in an embodiment, the main body 112 includes an arm engager 116 that engages and receives the arm 114. In an example, the arm engager 116 movably or slidably engages, and cooperates with, the arm 114, and the arm engager 116 includes a first slide guide or first lip 118 and a second slide guide or second lip 120 that collectively act to retain, guide and hold the arm 114. Lip 118 is downwardly tapered, and lip 120 is upwardly tapered. The tapering of the lips 118, 120 enables the arm engager 116 to retain and guide the arm 114 in its fore-aft movement along the main body axis 113 (FIGS. 4-5), which generally extends in directions 150 and 151 when the arrow rest mounting system 108 is coupled to the riser 104 and intersects with the target plane 156 when the archery bow 102 is aimed at the target 153. In addition, the first lip 118 and second lip 120 inhibit rotation of the arm 114 relative to the archery bow 102 during fore-aft slide movement of the arm 114. As illustrated in FIGS. 9-10, the arm engager 116 includes an arm engagement surface 143 which defines a gear slot 155 configured to expose a pinion or driver gear 145 of driver 122 as described below. As further described below, the driver gear 145 engages with the gear rack 149 of the arm 114.

In an example, the main body 112 additionally includes a position adjuster or driver 122 that adjusts the fore-aft position of the arm 114 relative to the main body 112. The driver 122 includes a rotatable hand grasp or knob 147 coupled to a driver shaft 152 which, in turn, is coupled to the driver gear 145. The pinion or driver gear 145 engages with the arm gear rack 149 of the arm 114 (FIG. 10), as described below. When the user rotates the knob 147, the pinion or driver gear 145 engages with the arm 114 so as to drive the arm 114. Depending upon whether the knob 147 is rotated clockwise or counterclockwise, the arm 114 moves in the forward or fore direction 150 or in the rearward or aft direction 151 along the fore-aft or main body axis 113 (FIG. 4).

In an example, the driver 122 performs an incremental or micro mechanized adjustment of the arm 114 along fore-aft or main body axis 113 (FIGS. 4-5). The degree of incremental control is based on the size and configuration of the gear teeth members of the driver gear 145 and the arm gear rack 149. Due to this incremental adjustment, the arm 114, and the arrow rest 106 coupled to the arm 114, can be precisely positioned in a mechanized, measured and controlled fashion. In an embodiment, before performing such mechanized adjustment, the user can perform a macro manual adjustment to the position of the arrow rest 106 by grasping and manually pushing or pulling the arm 114

relative to the arm engager 116. In an embodiment, the driver 122 includes one or more springs coupled to the driver shaft. The springs urge the driver 122 in a predisposed position or assist in securing the driver 122 in a finalized position set by the user.

In an embodiment, the driver 122 includes an electrically-powered actuator operable to automatically or semi-automatically move the pinion or driver gear 145. Depending upon the embodiment, such actuator can include a motor or an electromagnetic device. In addition, such actuator includes a battery operable to provide electrical power. In an embodiment, such an electrical driver 122 has a microprocessor coupled to a transceiver or antenna operable to wirelessly send and receive signals with communication or control devices, such as smart phones. In such embodiment, the present disclosure includes a smart phone software application enabling the user to input desired settings for the fore-aft and/or vertical positions of the arrow rest mounting system 108 relative to the bow 102. When the user inputs a command through the smart phone software application, such as Rest Position A, the processor causes the driver 122 to automatically bring the arrow rest mounting system 108 to the position associated with Rest Position A.

In an embodiment illustrated in FIGS. 6 and 9, the main body 112 includes or defines an opening or a mounting bore 124 that penetrates through the main body 112 perpendicular to the arm engagement surface 143. The mounting bore 124 can receive a screw, bolt or other fastener 126 (FIG. 6) for coupling the main body 112 to the bow riser 104. For example, the mounting bore 124 can be a threaded or non-threaded bore, and the fastener 126 can be a threaded fastener, such as a screw. In the embodiment where the mounting bore 124 is non-threaded, and the associated mounting hole 135 in the bow 102 (FIG. 1) is threaded.

In an embodiment illustrated in FIG. 9, the main body 112 also includes or defines an opening or pivot-stopping bore 125 that penetrates through the main body 112 perpendicular to the arm engagement surface 143. The pivot-stopping bore 125 is configured to receive a pin, screw, set screw, bolt or other suitable fastener (not shown). During installation, the user inserts fastener 126 (FIG. 6) through mounting bore 124 and screws fastener 126 into the mounting hole 135 (FIG. 1) of the bow 102. Next, the user inserts a fastener such as a set screw (not shown) through the pivot-stopping bore 125 (FIG. 6) and screws it into the threaded bore 125. Eventually, the set screw presses against the side 110 of the bow 102 to help fixedly secure the main body 112 on the bow 102. In an alternate embodiment, the user can insert a screw through a non-threaded bore 125 until entering into a supplemental threaded hole 137 (FIG. 1) of the bow 102. The user can tighten such screw to help fixedly secure the main body 112 to bow 102. Based on this multi-fastener approach, the main body 112 retains its fixed angular position, without pivoting, relative to the bow 102.

It should be appreciated that: (a) the mounting bore 124 can be non-threaded, slot-shaped, elongated or otherwise substantially larger than the screw fastener 126; or (b) the pivot-stopping bore 125 can be non-threaded, slot-shaped, elongated or otherwise substantially larger than the fastener that it receives. This configuration can enable the user to insert the fasteners and rotate the main body 112 to the desired angular position before fully tightening the fasteners. In doing so, the user can refer to the leveler 138 (FIG. 5). For example, the user may desire to set an angular position wherein the main body axis 113 of the main body 112 is perpendicular to a vertical axis 115 (FIG. 5). The vertical axis 115 extends substantially along the longitudinal

axis of the riser 104. In another example, the user may desire to set an angular position wherein main body axis 113 of the main body 112 is oriented at an angle of one hundred degrees relative to the vertical axis 115. Once set and tightened at the desired angle, the main body axis 113 is fixed relative to the vertical axis 115.

Referring to FIGS. 11-12, the arm 114 includes an arm structure 128. In an example, the arm structure 128 includes a main body engagement surface 130. For example, the main body engagement surface 130 can be shaped to engage the first and second lip 118, 120 in order to engage the arm engager 116 (FIG. 8). By engaging the first and second lips 118, 120, the arm 114 is held by, and slidably engages, the arm engager 116. In an example, a first end 134 of the arm structure 128 is inserted into the arm cavity 123 (FIG. 8) defined by the lips 118, 120 of the main body 112. In response to the driving force of driver 122, the arm structure 128 moves in a fore-aft direction along main body axis 113 relative to the main body 112.

Referring to FIGS. 11-12, the arm 114 also includes an arrow rest support 132 connected to the arm structure 128. In an example, the arrow rest support 132 is connected to a second end 136 of the arm structure 128. The arrow rest 106 can be coupled to the arrow rest support 132 in any suitable manner. For example, the arrow rest support 132 can receive a fastener (not shown) that couples the arrow rest 106 to the arrow rest support 132. In another example, the arrow rest 106 is coupled to a coupler or projection 133 extending from the arrow rest support 132.

As illustrated in FIGS. 5 and 12, in an embodiment, the arrow rest 106 includes a vertical position adjuster 117. By rotating or otherwise operating the vertical position adjuster 117, the user can change the up/down or vertical position of the arrow rest 106 relative to the arm 114. In operation, the vertical position adjuster 117 causes the arrow rest 106 to move along the vertical axis 115. Also, the arrow rest 106 includes a rest shaft adjuster 119 coupled to the arrow holder 111. The rest shaft adjuster 119 is operable to adjust the rotational position of the rest shaft 121. The rest shaft adjuster 119 enables the user to adjust the angle at which the arrow holder 111 extends relative to a vertical axis or target plane 156 (FIG. 1). In an embodiment, the rest shaft adjuster 119 also enables the user to adjust the level of resistance conveyed by the rest shaft 121 in response to a forward shooting force of the arrow 109.

Referring back to FIGS. 5 and 7, a level indicator 138, such as a bubble level indicator, can be coupled to the mounting system 108. In an example, the level indicator 138 is coupled to the main body 112 to facilitate the angular positioning of the main body 112 on the bow riser 104. Additionally, in an example, the main body 112 includes a position retainer or locking device 140 (FIG. 5), such as a latch or wing nut, for locking the arm 114 in position relative to the main body 112. The locking device 140 enables the user to secure the arm 114 in the desired fore-aft position after having used the driver 122 to reach the desired fore-aft position on main body axis 113. Accordingly, the locking device 140 prevents or reduces fore-aft misalignment due to future vibrations or forces caused by shooting or transport of the bow 102.

As described above, the main body 112 is coupled to the bow riser 104, and the arm 114 engages the arm engager 116 of the main body 112. When the bow 102 is not in use, such as held in storage or being shipped, the arm 114 can be fully disengaged from the arm engager 116. At that point, the arm 114, whether or not coupled to the arrow rest 106, can be transported or stored separately from the bow 102. In this

example, the main body 112 remains coupled to the bow 102, thus preserving the adjusted, desired angular position of the main body 112 relative to the bow 102. When the bow 102 is again used, the user inserts the arm 114 into the main body 112. At that point, the arm 114, when engaged with the main body 112, is automatically set at the desired, original angular position setting relative to the vertical axis 115 or longitudinal axis of the bow 102. For example, if the user had previously mounted the main body 112 so that its fore-aft or main body axis 113 is perpendicular to the vertical axis 115, the arm 114 would assume such same position, extending along such main body axis 113. If, in another example, the user had previously mounted the main body 112 so that its main body axis 113 is angled ninety-five degrees relative to the vertical axis 115, the arm 114 would assume such same angular position, extending along such angled main body axis 113.

By referring to the measurement markings described below, the user can return the arm 114 to the same fore-aft position along the main body axis 113 without the need to adjust the rotational or angular position of the arm 114 relative to the bow 102. Thus, the combined angular and fore-aft positions of the arrow rest mount 108, and thus the arrow rest 106, are reliably and conveniently repeatable.

During the shooting process, the bow 102 can be subject to torque acting along the longitudinal axis of the bow 102, causing an archery sight 142 (FIG. 3) to move in one direction and the arrow rest 106 to move in the opposite direction. This torque can negatively affect the use of the sight 142 and arrow rest 106, impairing shooting accuracy. Torque tuning can be employed to reduce or negate the effects of torque when operating the bow 102. For example, to compensate for such torque effects, the user can position the arrow rest 106 in the optimal position relative to the arrow sight 142, developing a "sweet spot" for the particular user. In this spot, or relative positioning between the sight 142 and rest 106, the torque-based movement of the arrow rest 106 and the archery sight 142 cancel each other out, thus reducing or negating the effects of torque on shooting accuracy.

The method for performing this adjustment includes mounting the arrow rest 106 to the bow riser 104 using the mounting system 108. The position of the arrow rest 106 is adjusted, such as incrementally adjusted with the position adjuster 122, along the main body axis 113 that extends toward a target of the archery bow 102 in a shooting direction 150. The archery sight 142 (FIG. 1) is also mounted to the bow riser 104 via an archery sight support. The position of the archery sight 142 is adjustable relative to a sight axis that extends toward the target when the archery sight support is mounted to the bow riser 104 and the bow 102 is aimed at the target. The position adjuster 122 adjusts the position of the arrow rest based on the position of the arm 114 relative to the position of the archery sight 142 until the preferred, "sweet spot" is reached. In an example, using the markings described below and the maintained, angular position of the main body 112 on the bow riser 104, the arrow rest 106 can be positioned (up/down and/or fore-aft) to reach the "sweet spot" during each shooting session without requiring potentially tedious, manual readjusting of all of the variable positions of the arrow rest 106 at the beginning of each session.

FIGS. 13-35 illustrate another embodiment of an arrow rest mounting system 160. The mounting system 160 includes a body 162 and an arm 164. The body 162 is configured to mount and couple to a side surface 110 of the archery bow 102 described above. Referring to FIGS.

21-30c, the body 162 includes a bow engagement surface 165 defining a bore 166 that receives a bow engager or fastener 168 to couple the body 162 to the bow 102.

The body 162 includes a multi-part arm engager 170 that engages and receives the arm 164. In an example, the multi-part arm engager 170 movably or slidably engages, and cooperates with, the arm 164, and the multi-part arm engager 170 includes a first lip or first slide guide 172 and a second lip or second slide guide 174 that collectively act to retain, guide and hold the arm 164. As shown in FIGS. 21-23, the first slide guide 172 is downwardly tapered and shaped to be inserted into a first valley or track 176 of the arm 164. The second slide guide 174 is upwardly tapered and shaped to be inserted into a second valley or track 178 of the arm 164. The tapering of the slide guides 172, 174 enables the multi-part arm engager 170 to cooperate with the tracks 176, 178 of the arm 164 and retain and guide the arm 164 in its fore-aft movement along the main body axis 180 (FIG. 13), which intersects with the target plane 156 (FIG. 1) when the archery bow 102 is aimed at the target 153.

In this embodiment, the body 162 includes a first body section 182 and a second body section 184. Referring to FIGS. 30a-30c, the first body section 182 includes the first slide guide 172. The first body section 182 has a first bore or opening 186 extending through the first body section 182 and a second bore 188 extending at least partially through the first body section 182, each extending substantially perpendicular to the body axis 180. A ledge or stabilizer 190 extends from the rear face 192 of the first body section 182. As will be further discussed below, the stabilizer 190 is configured to cooperate with the riser 104 of a bow 102 to prevent or inhibit rotation of the body 162. The bottom surface 194 of the first body section 182 is shaped to match and cooperate with a surface of the second body section 184.

Referring to FIGS. 29a-29c, the second body section 184 includes the second slide guide 174 and the bow engagement surface 165. In this embodiment, the bow engagement surface 165 defines the bore 166 or opening extending laterally through the second body section 184. Also, a vertical bore or opening 196 extends through the second body section 184 from the top surface 198 to the bottom surface 200. A horizontal bore or opening 202 extends partially through the second body section 184 from the front face or surface 204 of the second body section 184 to the bore 166. Another vertical bore 206 extends through the second body section 184 from the top surface 198 to the bottom surface 200. A ledge or stabilizer 208 extends from the rear face or surface 210 of the second body section 184. As will be further discussed below, an alignment pin 212 can be received or positioned in the vertical bore 206. The top surface 198 of the second body section 184 is shaped to correspond to the shape of the body surface 194 of the first body section 182.

Referring back to FIGS. 19a-19d, the arm 164 includes an arm structure 217 having the first valley 176 positioned in the top surface 218 and second valley 178 positioned in the bottom surface 220. The first and second valleys 174, 178 define a dovetail-shaped body engager or body engagement surface 219. As discussed above, the dovetail-shaped body engager 219 cooperates with the multi-part arm engager 170 to facilitate fore-aft, slide movement of the arm 164. The arm 164 can include a line of position setters 214 on a side surface 216. The position setters 214 can facilitate micro-adjustment of the arm 164 relative to the body 162. For example, each position setter 214 can define a cavity configured to receive a spring-activated pin (not shown) that is coupled to the body 162. Such pin can pop in and out of the



position setters **214** to facilitate reaching a repeatable landing position along the body axis **180** (FIG. **13**). In addition, a vertical adjustment surface **222** is coupled to a front face **224** of the arm **164**. In this embodiment, the vertical adjustment surface **222** includes a first valley **226** and a second valley **228**, which together form a male dovetail shape.

Referring to FIG. **26**, the bottom surface **192** of the first body section **182** corresponds to and mates with the top surface **198** of the second body section **184** so that the first and second body sections **182**, **184** are stacked to form the multi-part body **162**. A fastener **230** (FIG. **26**), such as a screw or bolt, extends through the vertical bore **186** of the first body section **182** and the vertical bore **196** of the second body section **184** to lock the first and second body sections **182**, **184** together. The alignment pin **212** extends through the vertical bore **206** of the second body section **184** and into the bore **188** (FIG. **30b**) of the first body section **182** to prevent or inhibit rotation of the first and second body sections **182**, **184** relative to each other. A second fastener **232**, such as a set screw, is positioned within the bore **202** (FIG. **29b**) of the second body section **184**. When the second fastener **232** is advanced into the bore **202**, the second fastener **232** contacts the bow engager **168** (FIGS. **28a-28b**), inhibiting the bow engager **168** from rotating and further locking the bow engager **168** in place.

The arm **164** is positioned so that the first slide guide **172** and second slide guide **174** are retained in the first valley **176** and second valley **178**, respectively, retaining the arm **164** in the arm engager **170**. As further illustrated by FIGS. **27a-27b**, as the fastener **230** advances through the threaded bore **196**, the fastener **230** tightens or pulls the first body section **182** and second body section **184** together, which tightens or closes the multi-part arm engager **170** around the arm **164**, changing the body **162** and arm **164** from an unlocked condition (FIG. **27a**) to a locked condition (FIG. **27b**) in which the **162** and arm **164** are locked together after the arm **164** has been slid to the desired position on the body axis **180**.

Referring to FIG. **18**, the arrow rest mounting system **160** includes a fore-aft position adjuster **234** that enables controlled, slide-based adjustment of the fore-aft position of the arm **164** relative to the body **162** along the body axis **180**. The fore-aft position adjuster **234** includes a rotatable hand grasp or knob **236** coupled to a drive shaft **238**. While the drive shaft **238** is positioned within the arm **164**, at least part of the drive shaft **238** is exposed or accessible. The exposed or accessible part (not shown) of the drive shaft **238** is coupled to a drive gear or horizontal gear track (not shown) which, in turn, is coupled to the body **162**. When the user rotates the knob **236**, the drive shaft **238** engages the gear track causing the drive shaft **238** and the arm **164** to slide along the body axis **180** relative to the body **162**. Depending upon whether the knob **235** is rotated clockwise or counterclockwise, the arm **164** moves in the forward direction **150** or in the rearward direction **151** along the body axis **180** (FIG. **13**). Further operation of an embodiment of the fore-aft position adjuster **234** is described above with regard to the mounting system **108**.

Referring back to FIGS. **13-17**, a supplemental adjustment structure **240** is coupled to the vertical adjustment surface **222** of the arm **164**. As illustrated by FIGS. **31a-31b**, the supplemental adjustment structure **240** includes a vertical adjustment surface **242** and a lateral adjustment surface **244**. The vertical adjustment surface **242** includes a first lip **246** at the end of a first body extension **252** and a second lip **248** at the end of a second body extension **254** separated from the first body extension by a slit or opening **256**, which

together define a female dovetail shape. The vertical adjustment surface **242** is configured to receive and slidably retain the vertical adjustment surface **222** of the arm **164**. A first bore **250** extends through a side surface **258** of the supplemental adjustment structure **240** and through the first body extension **252** and the second body extension **254**. The vertical adjustment surface **222** enables the user to adjust the vertical position of the arrow rest **320**, as described below.

The lateral adjustment surface **244** includes a first valley **260** and a second valley **262**, which together define a male dovetail shape. A channel **264** extends at least partially between the first valley **260** and the second valley **262**. A second bore **266** extends through the side surface **258** into the channel **264**. The lateral adjustment surface **244** enables the user to adjust the lateral position of the arrow rest **320**, as described below.

Referring again to FIGS. **13-17**, arrow rest support structure **268** is coupled to the supplemental adjustment structure **240**. As illustrated by FIGS. **32a-32b**, the arrow rest support structure **268** includes a lateral adjustment surface **270** that corresponds with and engages the lateral adjustment surface **244** of the supplemental adjustment structure **240**. The lateral adjustment surface **270** includes a first lip **272** and a second lip **274**, which define a female dovetail shape. The first valley **260** and second valley **262** (FIGS. **31a-311b**) receive the first lip **272** and second lip **274** to receive the male dovetail shape in the female dovetail shape and slidably engage the lateral adjustment surfaces **264**, **270**. A groove **276** extends into the arrow rest support structure **268** between the first lip **272** and second lip **274**. A first bore **278** extends through the arrow rest support structure **268** between the side surfaces **280**, **282**. A second bore **284** extends through the arrow rest support structure **268** from the front surface **286** to the rear surface **288**. A third bore **290** extends partially through the arrow rest support structure **268** from the rear surface **288** to the groove **276**.

Referring to FIGS. **13** and **18**, a lateral position adjuster **292**, including a knob **294** and a drive shaft **296** coupled to driver gear (not shown), is positioned in the bore **266**. When the user rotates the knob **294**, the driver gear drives the supplemental adjustment structure **240** to slidably move laterally relative to the arm **164** along lateral axis **309** (FIG. **13**). Depending upon whether the knob **294** is rotated clockwise or counterclockwise, the supplemental adjustment structure **240** moves in inward direction **310** (FIG. **13**) or in the outward direction **312**.

Referring to FIG. **31b**, a fastener **302** is positioned in the bore **250** to enable the user to adjust the vertical or up/down position of the supplemental adjustment structure **240** relative to the body **162**. To adjust the up/down position, the user can unscrew the fastener **302**. At that point, the first and second extensions **252**, **254** flex apart from each other, widening the slit **256**. Then, the user can slide the supplemental adjustment structure **240** upward or downward along up/down axis **297** (FIG. **13**) relative to the body **162**. When the fastener **302** is tightened, the first and second extensions **252**, **254** are pulled together, narrowing the slit **256**. The narrowing of the slit **256** tightens the first and second extensions **252**, **254**, and thus the first and second lips **246**, **248**, around the vertical adjustment surface **222** of the arm **164**, locking the relative positions of the vertical adjustment surfaces **222**, **242**. In an alternate embodiment (not shown), the supplemental adjustment structure **240** includes a knob coupled to a drive shaft for adjusting the up/down position of the supplemental adjustment structure **240** relative to the body **162**. Such embodiment has components and elements similar to that of the fore-aft position adjuster **234**.

An angular adjuster 304, including a knob 306 and drive shaft 308 coupled to a drive gear 319 (FIG. 18), is positioned in the bore 284. When the user rotates the knob 306, the drive shaft 308 causes the drive gear 319 to rotate. The drive gear 319, which is coupled to the arrow rest shaft 321, causes the shaft 321 to rotate clockwise or counterclockwise. Accordingly, the turning the knob 306, the user can adjust the angular setting of the arrow rest 320. Once the user reaches the desired angular position, the user can tighten fastener or locking member 314. The locking member 314 contacts and applies a force to the arrow rest shaft 321 to fix the arrow rest shaft 321 is the desired position.

As shown, the arrow rest support 318 extends through the bore 278, and the arrow rest 320 is coupled to the arrow rest support 318. The various adjustment surfaces described above allow the arrow rest support 318 to be adjusted: (a) in a fore-aft direction along fore-aft axis 161 (FIG. 13); (b) vertically or up/down along up/down axis 297 (FIG. 13); (c) laterally along lateral axis 309 (FIG. 13); and (d) angularly about the axis extending through the arrow rest shaft 321 (FIG. 13). The body 162, arm 164, supplemental adjustment structure 240, and arrow rest support structure 268 can include various markings or position indicators (not shown) to facilitate positioning relative to each other, and to facilitate reproduction of set positions. As described above with regard to the mounting system 108, these adjustments can be macro, micro, or a combination thereof. Referring back to FIGS. 13-17, a level indicator 322, such as a bubble level indicator, can be coupled to the mounting system 160.

Referring to FIGS. 33-35, the body 162 is coupled to the riser 104 of an archery bow 102. In this embodiment, the body 162 is positioned against the side surface 110 of the riser 104, with the bow engager 168 extending into the riser 104. The ledges or stabilizers 190, 208 hook around and contact the rear face or surface 107 of the riser to prevent or inhibit rotation of the body 162 relative to the riser 104.

FIGS. 36-38b illustrate another embodiment of a body-arm assembly 324. In this embodiment, the body 326 includes an arm engager 328 having a first lip or first slide guide 330 and a second lip or second slide guide 332. The body 326 also has a bow engagement surface 334, configured to receive a bow engager 336, and a ledge or stabilizer 338 extending from the body 326 and configured to prevent rotation of the body 326 relative to a bow riser. A bore 340 extends at least partially through a side surface 342 of the body 326. A second bore (not shown) extends through the body 324 from the front surface 344 to the bow engagement surface 334. A set screw 346 is positionable within the second bore to prevent rotation of the bow engager 336.

The arm 348 includes a first arm section 350 and a second arm section 352. The arm 348 includes a body engagement surface 354 formed by a first valley or track 356 on the first arm section 350 and a second valley or track 358 on the second arm section 352. The first arm section 350 defines a first inset section 360 extending from a side surface 362 and bottom surface 364 partially through the first arm section 350 and defining two levels within the first inset section 360. The second arm section 352 defines a second inset section 366 extending from a side surface 368 and top surface 370 partially through the second arm section 352 and defining a first inset level 372 and a second inset level 374. The second inset level 374 defines a ledge or back surface 376 of the second inset section 366. Together, the first inset section 360 and second inset section 366 define a track 378.

The body engagement surface 354 is configured to be received in the arm engager 328 to retain the arm 348 in the body 326. A fastener 380, such as a bolt, extends through the

track 378 into the bore 340. When the fastener 380 is tightened, the fastener 380 applies a force against the first and second inset sections 360, 366, causing the first and second arm section 350, 352 to separate and apply a force to the first and second slide guides 330, 332. The application of the force causes the arm 348 to move from an unlocked condition (FIG. 38a) to a locked condition (FIG. 38b), locking the position of the arm 348 relative to the body 326.

FIGS. 39-46 illustrate another embodiment of an arrow rest mounting system 382. As illustrated by FIGS. 39-42, the mounting system 382 includes an arm 384, a first arrow rest support section 386, a second arrow rest support section 388, a third arrow rest support section 390, and an arrow rest 392. With reference to FIGS. 43a-43b, the arm 384 includes an arm structure 385 having a bow engagement surface 395 defining a bore 394 configured to receive a coupler (not shown), such as a fastener or bolt. In an embodiment, the bow engagement surface 394 can receive multiple couplers to prevent rotation of the arm 384 relative to the riser 104, or the bow engagement surface 395 can receive a single coupler. The arm structure 385 additionally includes a body engagement surface 396 that has a first valley 398 and a second valley 400 that together define a male dovetail shape. As will be further discussed below, the arm structure 385 can have position markings or indicators 402.

Referring to FIGS. 44a-44c, the first arrow rest support section 386 includes an arm engagement surface 404 defining a first tapered lip 406 and a second tapered lip 408. The first tapered lip 406 and second tapered lip 408 are configured to be received in the first valley 398 and second valley 400 of the arm 384 to retain the arm 384 in the first arrow rest support section 386. A channel 409 extends partially into the body between the first lip 406 and the second lip 408. A bore 410 extends at least partially through the first arrow rest support section 386 from the top surface 412 and into the channel 409. A vertical adjustment surface 414 is positioned opposite the arm engagement surface 404. The vertical adjustment surface 414 includes a first lip 416 and a second lip 418, which together define a female dovetail shape.

Referring to FIGS. 45a-45b, the second arrow rest support section 388 includes a vertical adjustment surface 420. The vertical adjustment surface 420 includes a first valley 422 and a second valley 424 and a groove 426 extending vertically through a portion of the second arrow rest support section 388 between the first valley 422 and the second valley 424 and dividing the upper portion of the second arrow rest support section 388 into a first body portion 427 and a second body portion 429. The first valley 422 and second valley 424 together define a male dovetail shape that corresponds to the female dovetail shape of the vertical adjustment surface 414 of the first arrow rest support section 386. A body extension 440 protrudes or extends from a side surface 442 of the second body portion 429 between the second valley 424 and the groove 426. A bore or opening 444 extends through the body extension, extending along same direction as the groove 426. A bore or opening 428 extends through the second arrow rest support section 388 from a rear surface 430 to the groove 426.

An angular adjustment surface 432 extends from the bottom of the second arrow rest support section 388. The angular adjust surface 432 defines an angular adjustment track 434 and a curved or arc-shaped opening 436 positioned within the angular adjustment track 434 and extending through the second arrow rest support section 388 from side surface 437 to side surface 439. An inner ledge 446 extends around the inner surface 448 of the curved opening 436. A

plurality of angular position markings or indicators **438** extend on the side surface **434** along the angular adjustment surface **432**.

Referring to FIG. **46**, the arrow rest support includes a support body **450**. The arrow rest **392** couples to a top surface **452** of the support body **450**. An angular adjustment surface **454** extends from a side surface **456** of the support body **450**. The angular adjustment surface **454** defines an angular track **458** that corresponds to the angular track **434** of the second arrow rest support section **388**. A bore **462** extends through the support body **450** from side surface **456** to side surface **462**. A position adjuster **464**, has a grasp or knob **466** coupled to a shaft (not shown) that extends through the bore **462** from side surface **462** to the side surface **456**.

Referring again to FIGS. **39-42**, the angular adjustment track **458** of the third arrow rest support section **390** is positioned within the angular adjustment track **434** of the second arrow rest support section **388** with the shaft of adjuster **464** extending through the bore **460** and through the curved opening **436**. A retaining member (not shown) rests in the opening **436** against the ledge **446** to retain the angular adjustment track **458** of the third arrow rest support section **390** within the angular adjustment track **434** of the second arrow rest support section **388**. The incremental rotation of the knob **466** causes the third arrow rest support section **390** to move along the arc path defined by the angular adjustment surface **432**. This produces two adjustments—an adjustment of the angular position of the arrow rest **392** and an adjustment of the up/down or vertical position of the arrow rest **392**.

The vertical adjustment surface **420** of the second arrow rest support section **388** is received and slidably engages the vertical adjustment surface **414** of the first arrow rest support section **386**. In engaging the vertical adjustment surfaces **414**, **420**, the lips **416**, **418** of the vertical adjustment surface **414** are positioned within the valleys **422**, **424** of the vertical adjustment surface **420**. In addition, the body extension **440** is positioned within the channel **409** with the bore **410** and the bore **444** aligned. A fore-aft position adjuster **468**, having a knob **470** and a shaft (not shown), extends through the bores **410**, **444**. Rotating the knob **470** causes the first and second arrow rest support sections **386**, **388** to slide in a fore-aft direction along arm axis **397** (FIG. **39**).

By untightening fastener **472**, the user can adjust the up/down position of the relative to the first and second arrow rest support sections **386**, **388** relative to the arm **384**. The fastener **472** extends through the bore **428**. When the fastener **472** advances into the bore **428**, the fastener **472** contacts and applies a force to an inner surface **474** of the second body portion **429** that defines the groove **426**. The application of the force causes the groove to widen or expand, causing the first body portion **427** and second body portion **429** to apply a force to the first lip **416** and second lip **418** and lock the position of the second arrow rest support section **388** relative to the first arrow rest support section **386**.

The arm engagement surface **404** engages the body engagement surface **396** to slidably retain the arm **384**. In this embodiment, the first and second lips **406**, **408** are positioned in the first and second valleys **398**, **400**, enabling the arm **384** to slide relative to the first arrow rest support section **386**.

FIGS. **47-54b** illustrate yet another embodiment of an arrow rest mounting system **476**. As illustrated in FIGS. **47-50**, the mounting system **476** includes a body **478**, an arm **480**, a first adjustment structure **482**, a second adjustment

structure **484**, an arrow rest support **486**, and an arrow rest **488**. Referring to FIGS. **51a-51b**, the arm **480** includes an arm structure **490** having a body engagement surface **492**. The body engagement surface **492** includes a first valley **494** and a second valley **496** that together define a male dovetail shape. A plurality of position indicators **498** are positioned along a side surface **500** of the arm structure **490**. A plurality of visual position indicators or markings **499** extend along a top surface **501** of the arm structure **490** to facilitate positioning of the arm **480** by a user.

A vertical adjustment surface **502** is positioned at the rear face **504** of the arm structure **490**. The vertical adjustment surface **502** includes a first lip **506** and a second lip **508**. A channel **510** extends at least partially through the arm structure **490** between and extending along the first lip **506** and the second lip **508**. A bore **512** extends through a bottom surface **514** of the arm structure **490** into the channel **510**.

Referring to FIGS. **52a-52b**, the body **478** includes an arm engager or arm engagement surface **516** having a tapered first lip or slide guide **518** and a tapered second lip or slide guide **520**. A bow engagement surface **522**, illustrated here as a bore extending through the body **478** from side surface, is configured to receive a bow engager **528** (FIG. **47**), such as a fastener. A bore **530** extends at least partially through the body **478** from the bottom surface **532** toward the top surface **534**. A groove **536** extends partially through the body **478** from the front surface **538** toward the rear surface **540** along a body axis **544**. A position marking **542** can be positioned on the top surface **534**. A first bore or opening **555** extends through the first body portion **554** from the side surface **576**.

Referring to FIGS. **53a-53c**, the first adjustment structure **482** includes a vertical adjustment surface **546** having a first lip or slide guide **548** and a second lip or slide guide **550** that define a female dovetail shape. A groove or slit **552** extends into the first adjustment structure **482** between the first slide guide **548** and the second slide guide **550**, defining a first body portion **554** and a second body portion **556**. A fore-aft adjustment surface **558** extends along the rear surface **560** of the first adjustment structure **482**. The fore-aft adjustment surface **558** includes a first leg **562** defining a first valley **564** and a second leg **566** defining a second valley **568**. The first and second valley **564**, **568** define a male dovetail shape. A channel **570** extends partially through the first adjustment structure **482** from a side surface **572** along the first and second valleys **564**, **568**. A bore **574** extends through the side surface **576** into the channel **570**. A plurality of position markings **578** can extend along the top surface **580** and along a side surface **582**.

Referring to FIGS. **54a-54b**, the second adjustment structure **484** includes a fore-aft adjustment surface **584**. The fore-aft adjustment surface **584** includes a first lip **586** and a second lip **588** that define a female dovetail shape. A channel **590** extends through the second adjustment structure **484** from side surface **592** to side surface **594** between the first lip **586** and the second lip **588**. A bore **596** extends through the second adjustment structure **484** from the rear surface **598** to the channel **590**. A second bore **600** extends through the second adjustment structure **484** from the front surface **602** to the rear surface **598** along the bottom **604** of the second adjustment structure **484**. A third bore **606** extends through the second adjustment structure **484** from side surface **592** to side surface **594**, extending below the fore-aft adjustment surface **584** and above the second bore **600**. A fourth bore **608** extends through the second adjustment body parallel to the bore **596**.

Referring again to FIGS. 47-50, the arrow rest 488 is coupled to the arrow rest support 486, which extends through the bore 606. The fore-aft adjustment surface 584 of the second adjustment structure 484 slidably engages the fore-aft adjustment surface 558 of the first adjustment structure 482. The vertical adjustment surface 546 of the first adjustment structure 482 slidably engages the vertical adjustment surface 502 of the arm 480 and the body engagement surface 492 of the arm 480 slidably engages the arm engagement surface 516 of the body 478.

A position lock 610 is inserted in the bore 530 and is configured to narrow the groove 536, bringing the lips 518 and 520 closer together and locking the position of the arm 480 relative to the body 478. A second position lock 612 is positioned in the bore 555 of the first adjustment structure 482 and configured to lock the vertical position of the first adjustment structure 482 relative to the arm 480. A third position lock 614 is positioned in the bore 608 and configured to lock the fore-aft position of the second adjustment structure 484 relative to the first adjustment structure 482. A first driver 616 is positioned in the bore 512 (FIG. 51b) and rotation of the first driver 616 drives the arm 480 fore-aft relative to the body 478 along arm axis 481 (FIG. 47). A second driver 618 is positioned in the bore 574 (FIG. 53b) and configured to drive the first adjustment structure 482 laterally (e.g., along axis 309 shown in FIG. 13) relative to the arm 480. A third driver 620 is positioned in the bore 600 (FIG. 54a) and configured to rotate the arrow rest shaft (FIG. 50) so as to change the angle of the arrow rest 488. Thus, the arrow rest 488 can be adjusted fore-aft, vertically, laterally and angularly.

FIGS. 55-60 illustrate yet another embodiment of an arrow rest mounting system 622. The mounting system 622 includes a body 624, an arm 626, a first adjustment structure 628, a second adjustment structure 630, an arrow rest support 632, and an arrow rest 634. Referring to FIGS. 57a-57b, the body 624 includes an arm engager or arm engagement surface 636. The arm engagement surface 636 includes a first tapered lip or slide guide 638 and a second tapered lip or slide guide 640. The body 624 also includes a bow engagement surface 642, shown here as a bore extending through the body 624 and configured to receive a bow coupler (not shown).

Referring to FIG. 58, the arm 626 includes an arm structure 643. The arm structure 643 includes a body engagement surface 644 having a first valley 646 and a second valley 648 (FIG. 56). In the illustrated embodiment, the arm structure 643 includes a plurality of cutouts or windows 650 extending through the arm structure 643. The windows 650 decrease the weight of the arm structure and provide visibility.

A vertical adjustment surface 652 extends from a rear surface 654 of the arm structure 643. The vertical adjustment surface 652 includes a first lip or slide guide 656 and a second lip or slide guide 658. A groove 660 extends through the vertical adjustment surface 652 between and along the first and second slide guides 656, 658, defining a first portion 662 and a second portion 664. A first bore 666 extends through the vertical adjustment surface 652 from side surface 668 to side surface 670. A second bore 672 extends into the vertical adjustment surface 652 from a rear surface 674 of the vertical adjustment surface 652.

Referring to FIG. 59, the first adjustment structure 628 includes a vertical adjustment surface 676 extending along a front surface 678 of the first adjustment structure 628. The vertical adjustment surface 676 includes a first valley 680 and a second valley 682 defining a male dovetail shape. A

bore 684 extends through the first adjustment structure 628 from top surface 686 to bottom surface 688 along the vertical adjustment surface 676. A lateral adjustment surface 690 extends from side surface 692 to side surface 694 across the bottom surface 688 of the first adjustment structure 628. The lateral adjustment surface 690 includes a first lip or slide guide 696 and second lip or slide guide 698, which together define a female dovetail shape. A groove 700 extends partially into the first adjustment structure 628 between and along the first slide guide 696 and second slide guide 698.

Referring to FIG. 60, the second adjustment structure 630 includes a lateral adjustment surface 702 extending from side surface 704 to side surface 706 across the top surface 708 of the second adjustment structure 630. The lateral adjustment surface 702 includes a first valley 710 and a second valley 712, together defining a male dovetail shape. A bore 714 extends from side surface 704 to side surface 706 through the second adjustment structure 630.

Referring again to FIGS. 55-56, the arm engagement surface 636 slidably engages the body engagement surface 644, permitting fore-aft movement of the arm 626 relative to the body 624 along arm axis 627 (FIG. 55). The vertical adjustment surface 652 of the arm 626 slidably engages the vertical adjustment surface 676 of the first adjustment structure 628, permitting vertical movement of the first adjustment structure 628 relative to the arm 626. The lateral adjustment surface 690 of the first adjustment structure 628 slidably engages the lateral surface 702 of the second adjustment structure 630, permitting lateral movement of the second adjustment structure 630 relative to the first adjustment structure 628 along axis 309 (FIG. 13). The arrow rest support 632, to which the arrow rest 634 is coupled, is received in the bore 714 of the second adjustment structure 630. Thus, the arrow rest 634 can ultimately be adjusted fore-aft, vertically and laterally. Position locks (not shown) can be positioned in the bores 666, 684 to compress the grooves 660, 700 and lock the vertical and fore-aft positions, respectively.

FIGS. 61-65 illustrate another embodiment of a body arm assembly 716 employing an arm 720, having a vertical adjustment surface 722, similar to the arm 626 described above with regard to the mounting system 622. The body 718, in contrast to the previously described external arm engagement surfaces, has an internal arm engagement surface 732 (FIG. 64) defining an elongated cavity 726. In this embodiment, the cavity 726 extends through the body 718 from the rear surface 728 toward the front surface 730 of the body 718 and defines a track for the arm 720. The body 718 has a bow engagement surface 734 and a stabilizer or ledge 736 extending from the body 718 and configured to prevent rotation of the body 718 relative to a bow riser.

FIGS. 66-70 illustrate another embodiment of an arrow rest mounting system 738. The mounting system 738 includes a body 740, an arm 742, an adjustment body 744, and arrow rest support 746, and an arrow rest 748. Similar to the body arm assembly 716 described above, the body 740 includes an internal arm engagement surface 750 defining an elongated slot or cavity 751 (FIGS. 68a-68b). The cavity 751 extends through the body 740 from a rear surface 752 to a front surface 754 and defines a guide track 756 for the arm 742. The body 740 includes one or more bores 758 extending through the body 740 and configured to receive a bow coupler (not shown), such as a fastener to couple the body 740 to a bow riser.

Referring to FIG. 69, the arm 742 includes an arm structure 760 having a vertical adjustment surface 762. Referring to FIG. 70, the adjustment body 744 includes a

vertical adjustment surface **764** configured to slidably engage the vertical adjustment surface **762** of the arm **742**. A bore **766** extends through the adjustment body **744** and is configured to receive the arrow rest support **746** (FIG. **67**).

FIGS. **71-72** illustrate another embodiment of an arrow rest mounting system **768**. The mounting system **768** includes an arm **770**, a first body **772**, a second body **774**, an arrow rest support **776**, and an arrow rest **778**. The arm **770** includes a bore **780** extending from side surface **782** to side surface **784** through the arm **770** and is configured to receive a bow engager (not shown), such as a fastener. An oblong track **786** extends from side surface **782** to side surface **784** through the arm **770** along the arm axis **787**. An opening or bore **788** extends through the front surface **790** of the arm **770** into the track **786**. The first body **772** includes a body extension **792** protruding from the first body **772** into the track **786**. An opening or bore **794** extends through the body extension along the arm axis **787**. A guide rod **796** extends into the track **786** through the opening **788** and the bore **794**. The guide rod **796** holds the body extension **792** within the track **786** while permitting fore-aft movement of the first body **772** relative to the arm **770**. The first body **772** and second body **774** define a lateral adjustment section **798** for adjustment along axis **309** (FIG. **13**).

FIG. **73** illustrates an alternative embodiment of a body **800**. The body **800** includes a partially enclosed arm engagement surface **802** and one or more bores **804** positioned above the arm engagement surface **802** and configured to receive a bow engager (not shown) such as a fastener to couple the body **800** to a bow riser.

It is to be understood that while the previous embodiments have been described in the context of arrow rest mounting systems, the above described mounting systems can be used to mount any suitable type of bow accessory to the riser of a bow, such as a sight device. For example, each one of the mounting systems described above can exclude the arrow rest support **132**, **318**, **486**, **632**, **746** or **776** and, instead, include a sight support, flash light support or any other bow accessory support.

Additional embodiments include any one of the embodiments described above, where one or more of its components, functionalities or structures is interchanged with, replaced by or augmented by one or more of the components, functionalities or structures of a different embodiment described above.

It should be understood that various changes and modifications to the embodiments described herein will be apparent to those skilled in the art. Such changes and modifications can be made without departing from the spirit and scope of the present disclosure and without diminishing its intended advantages. It is therefore intended that such changes and modifications be covered by the appended claims.

Although several embodiments of the disclosure have been disclosed in the foregoing specification, it is understood by those skilled in the art that many modifications and other embodiments of the disclosure will come to mind to which the disclosure pertains, having the benefit of the teaching presented in the foregoing description and associated drawings. It is thus understood that the disclosure is not limited to the specific embodiments disclosed herein above, and that many modifications and other embodiments are intended to be included within the scope of the appended claims. Moreover, although specific terms are employed herein, as well as in the claims which follow, they are used

only in a generic and descriptive sense, and not for the purposes of limiting the present disclosure, nor the claims which follow.

The following is claimed:

**1.** An arrow rest mounting system comprising:

a main body configured to be coupled to a side surface of an archery bow and extend along a main body axis; and an arm extending along an arm axis that extends in a same direction as the main body axis, wherein the arm comprises,

a plurality of main body engagement surfaces configured to engage the main body to support and retain the arm on the main body, and

an arrow rest support configured to support an arrow rest and move relative to the arm along an axis that intersects the arm axis,

wherein the plurality of main body engagement surfaces of the arm are configured to direct a slide movement of the arm relative to the main body along the arm axis and inhibit rotation of the arm relative to the main body.

**2.** The arrow rest mounting system of claim **1**, wherein the archery bow extends along an archery bow axis, and wherein the main body axis intersects the archery bow axis.

**3.** The arrow rest mounting system of claim **1**, further comprising a first adjustment structure movably coupled to the arm.

**4.** The arrow rest mounting system of claim **3**, wherein the first adjustment structure is configured to move the arrow rest support in a vertical direction relative to the arm axis when the archery bow is oriented upright.

**5.** The arrow rest mounting system of claim **4**, further comprising a second adjustment structure movably coupled to the first adjustment structure.

**6.** The arrow rest mounting system of claim **5**, wherein the second adjustment structure is configured to move along an axis that intersects with a plane in which a portion of a bowstring travels when the bowstring is coupled the archery bow.

**7.** The arrow rest mounting system of claim **5**, wherein the second adjustment structure is configured to move angularly relative to the first adjustment structure.

**8.** The arrow rest mounting system of claim **7**, further comprising a second position adjuster operatively coupled to the second adjustment structure and configured to drive movement of the second adjustment structure.

**9.** An arrow rest mounting system comprising:

a main body extending along a main body axis and configured to be coupled to a side surface of an archery bow; and

an arm extending along an arm axis and configured to engage the main body to inhibit rotation of the arm relative to the main body, the arm comprising an arrow rest support configured to support an arrow rest and move relative to the arm along an axis that intersects the arm axis,

wherein the arm is configured to slide relative to the main body along the main body axis.

**10.** The arrow rest mounting system of claim **9**, wherein the archery bow extends along an archery bow axis, and wherein the main body axis intersects the archery bow axis.

**11.** The arrow rest mounting system of claim **9**, wherein the arm further comprises a plurality of main body engagement surfaces configured to engage the main body.

**12.** The arrow rest mounting system of claim **9**, further comprising a first adjustment structure movably coupled to the arm.

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13. The arrow rest mounting system of claim 12, wherein the first adjustment structure is configured to move in a vertical direction relative to the arm axis when the archery bow is oriented upright.

14. The arrow rest mounting system of claim 13, further comprising a second adjustment structure movably coupled to the first adjustment structure.

15. The arrow rest mounting system of claim 14, wherein the second adjustment structure is configured to move along an axis that intersects with a plane in which a portion of a bowstring travels when the bowstring is coupled the archery bow.

16. The arrow rest mounting system of claim 14, wherein the second adjustment structure is configured to move angularly relative to the first adjustment structure.

17. The arrow rest mounting system of claim 16, further comprising a second position adjuster operatively coupled to the second adjustment structure and configured to drive movement of the second adjustment structure.

18. A method for manufacturing an arrow rest mounting system, the method comprising:

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structuring a main body to extend along a main body axis and to be coupled to an archery bow; and

structuring an arm to,

extends along an arm axis in a same direction as the main body axis,

engage the main body to inhibit rotation of the arm relative to the main body,

support an arrow rest support supporting an arrow rest, wherein the arrow rest support is configured to move relative to the arm along an axis that intersects the arm axis, and

slide relative to the main body along the arm axis.

19. The method of claim 18, further comprising structuring a locking device configured to lock the arm in place relative to the main body.

20. The method of claim 19, wherein the structuring of the main body comprises structuring a stabilizer so that the stabilizer extends from a surface of the body and is configured to engage the archery bow to inhibit rotation of the main body relative to the archery bow.

\* \* \* \* \*

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 11,754,364 B2  
APPLICATION NO. : 17/463285  
DATED : September 12, 2023  
INVENTOR(S) : Daniel A. Summers et al.

Page 1 of 1


It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

Claim 6:  
Column 20  
Line 38 change "coupled the" to --couple to the--

Claim 15:  
Column 21  
Line 11 change "coupled the" to --couple to the--

Claim 18:  
Column 22  
Line 4 change "extends" to --extend--

Signed and Sealed this  
Twelfth Day of March, 2024  
  
Katherine Kelly Vidal  
Director of the United States Patent and Trademark Office